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PEDIATRICS

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DEVOTED TO THE STUDY OF

DISEASE IN INFANTS AND CHILDREN

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EDITORIAL COMMENTS

Tetanus Following Vaccination

The recent epidemic of tetanus following vaccination in Camden and other parts of New Jersey has justly alarmed the natives and will, we hope, teach a valuable lesson to practitioners of medicine. At this writing all tests of the virus on white mice and other small animals peculiarly susceptible to tetanus have failed to show the presence of the bacillus tetani or its toxins. The long period which elapsed in many of the vaccinated cases before the appearance of symptoms of tetanus strongly indicated beforehand that these test-experiments would prove negative.—That general practitioners, and public vaccinators too, for that matter, are liable to be very careless regarding the laws of asepsis is too notorious to require comment. Soap and water, a clean scrubbing brush and a little alcohol, although infrequently employed, are not enough. The needle and spatula must be sterile. The operator rarely cleanses his hands; often when using tubes he blows the glycerinated virus out with his mouth and is liable to blow sputum along with the lymph. This latter error in technique may be avoided by using a small rubber bulb for the purpose, or by using tubes with a glass bulb at one end by heating which the contents of the tube will be expelled. As the tetanus bacillus requires the presence of other organisms before it can elaborate its toxins, it is fitting that every possible source of contamination should be avoided. Dirty children had best have the vaccination-wound dressed aseptically in a surgical manner after the virus and serum have dried. T.

ORIGINAL ARTICLES

ON THE MENTAL HEBETUDE OR STUPOR OF PULMONARY CONGESTION AND PNEUMONIA IN CHILDREN.

By Arthur DeVoe, M.D.,
Seattle, Wash.

NO hard and fast adhesion to the theory of the causation of pneumonia by the diplococcus of Fraenkel has resulted in a generally accepted theory or formula of this disease, but certain class distinctions as to the bedside phenomena in the case of children as compared with adults are helpful for both diagnosis and treatment.

A leading symptom in time and in the burden of its significance has been observed and commented on by nearly all writers on the subject of pneumonia in children. Does the general treatment employed with these little sufferers indicate that the origin and commands of this symptom have been duly interpreted and obeyed? Such is the burden of the inquiry here attempted.

Clinical and didactic teachings represent the child in an early or incipient stage of pneumonia in picturesque and varied terms as lethargic, comatose; child lies in torpor; child lies quietly in its cradle in a seemingly somnolent state; lies in bed with eyes closed as if in sleep; child dozes and starts up fretfully to be soon again in troubled sleep, overcome by drowsiness. Child of eight was lying in bed very quietly in a very somnolent state and responded to questions very slowly and with eyes closed. Child of three years in comatose condition, temperature 106⅘°, etc.

A recent writer[1] says that a pneumonia of the utmost virulence may demonstrate itself with but a single patch of of consolidation, and in the so-styled cases of cerebral pneumonia one may find a temperature of 106° with no apparent indications of inflammatory approach in the lung tissue.

A standard authority[2] says the child at this period lies with eyes shut, apparently in a half-conscious state, fretful if

spoken to or aroused, so that the physician would be led to to suspect the presence of cerebral disease.

A classical German writer[3] on pediatrics tells us that in the large majority of cases pneumonia begins suddenly. He has occasionally noticed the initial chill in children over five years, and more frequently, repeated vomiting. This onset and the rapid rise of temperature may lead to error, as the respiratory symptoms may be entirely latent and cerebral symptoms appear, especially somnolence, delirium, dark-red face, glistening eyes. Examination of the chest gives either negative results, or, at the most, shows diminished vesicular breathing in the affected portion. This latency of the physical signs, which may continue from four to six days, in connection with the predominance of cerebral or gastric symptoms, readily leads to the erroneous diagnosis of meningitis or the beginning of typhoid fever.

One American text-book[4] refers to the sympathetic disturbances of the stomach and bowels as obscuring the chest symptoms, and further on asserts that in young children the fatal termination is more frequent than recovery. The same writer says one form of croupous pneumonia differing in its course from the usual character of the disease in its severe cerebral symptoms, and peculiar to children, has been described as cerebral pneumonia. It possesses more the character of a meningitis than a pneumonia, and two varieties of it have been described—the eclamptic and the meningeal—according to the predominance of convulsions or delirium.

Many writers note that the kidneys in pneumonia frequently give evidence of irritation and restricted function and all authorities might testify that the skin is morbidly hot or cold, overlying a tardy and unequal capillary circulation.

Now, how shall we account for the mental dullness and sopor of incipient and developed pneumonia in children? Leaving the more or less hypothetical pneumococcus out of our reckonings we have a general condition of inefficient elimination *via* the skin, kidneys, bowels and lungs, resulting in a degree of uremia and antointoxication from the oppression of which the exceptionally impressionable child-brain manifests stupor associated with morbid irritation.

Worms, diarrhea, intestinal obstruction, various infectious fevers and preputial irritations have been cited as causative of spasmodic trouble in children. Milder forms of intestinal

irritation and indigestion in children have been held responsible for more specialized brain and motor reflexes resulting in defects of speech, severe and somewhat prolonged stuttering having been cured by the correction of intestinal errors.

The nervous responsibilities of child-life which are centered in the due performance of the digestive functions far outweigh those of the natural relations and conditions of adult life. It is not strange that the child's brain in pneumonia should be more oppressed than the adult's. We may hereby readily understand why the so-called cerebral pneumonia is named as a disease peculiar to childhood, and also find clearer explanation of the fact that a final diagnosis may vibrate between pneumonia, meningitis and typhoid fever.

Dr. Osler[5] writes of the depressing action of the toxins in pneumonia on "cardio-respiratory centers." In the pneumonia of children we should bear in mind the depressing effects of toxins and intestinal irritants on the conscious and general motor centers of the brain.

The thesis may be conceded that croupous pneumonia is the result of infection of the blood by pneumococci; nevertheless the full fruition of that infection in developed pneumonia may be avoided by removing burdensome and poisonous matter from the body before the maturity of inflammatory action in the lung. This theory may not suit some of the adherents of the special germ theory but it is in line with the accepted belief that the healthy portion of our race resists the ever present bacillus tuberculosis and the Klebs-Loeffler germ by force of vital energy and good functional service in the elimination.

If the child is seriously ill and exhibiting mental torpor and irritation we should not wait to make a positive diagnosis of an existing pneumonia, meningitis or typhoid fever, but should proceed at once to assist elimination by unloading the bowels and promoting the action of all the eliminating organs, at the same time favoring an equal and just circulation of the blood in the general capillary system. In cases where the temperature is high cold water compresses should be placed around the chest and over the shoulders, at the same time protecting the brain by cold water applied to the forehead and nape of the neck.

Any physician who will stand repeatedly at the bedside of his little pneumonia patient and witness the removal by cool-

ing enemas, say temperature 65° F., of offensive fecal matter, will not long remain in doubt as to whether the aggregate of toxic material and elements of toxic and gastric irritation have been lessened by the process.

The impossibility of effecting complete intestinal asepsis seems to have discouraged attention to this subject. But the complete, the ideal, is not to be attained even in our cleansing of the hands and surgical instruments. Interiorly, the abatement of the mass of material and toxic pressure relieves the capillary circulation and gives new impulse to the unstripped muscular fibers. Moreover the suitable variation of temperature of the injected waters may give physiologic impulse just as surface stimulation is realized by hot or by cold baths, to fit the case.

Besides the exceptional delicacy and activity of the child-brain in its relations to digestive processes, there are other reasons which should impel the physician in charge to secure prompt intestinal asepsis for his small pneumonia patients. Children are less cleanly in their habits than adults, less careful to guard the digestive tract from impurities taken into the mouth, or to avoid such. Children's mouths are also more foul than is the case with the average adult by reason of toxic generating carious teeth, whence flow toxic matters reaching the stomach and intestines and influencing the blood. From all of which it is urged that the *prima via* in children, from the buccal cavity down, should be effectively cleansed at every bed side where a feverish patient is confined.

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1. J. J. Morrissey, M.D., New York. "Hyperpyrexia in Pneumonia."
2. J. L. Smith, M.D. Text-book, 5th edition, p. 581.
3. Dr. Edward Henoch, Diseases of Children. W. Wood & Co., 1882, p. 153.
4. T. C. Duncan, M.D. Text-book.
5. Medical Times and Register.

METHODS OF CARRYING BABIES.

By A. D. Mewborn, M.D.,
New York.

NOWHERE in the world can one study woman as a burden carrier better than at Ellis Island. Here the selfishness of man has free play, untrammeled by the criticisms of conventional society. While the "lord of creation" may swing airily along with his tickets and passport, his wife must bring the baggage and babies. The means by which she seeks to economize her forces and her conservatism in adhering to time-honored customs are perhaps best shown in the way she carries her offspring. The most primitive manner was to carry the child on the back of the mother. Mason* says that in the tropics, "where the savage mother, being usually unclothed, except with a sash, girdle, or apron, the child had to straddle the mother's hips as best he could and hold on to the girdle. When a shawl of any kind was used the rider could crawl into that; and when the mother, in addition to being locomotive and passenger-car, had also freight to carry, the youngster rode on the top of the freight."

It is interesting to note that among the animals most nearly resembling man in structure—the anthropoids—the mother travels always with the young holding on to her neck or riding on the hips, the long hair of the mother enabling her to dispense with shawl or girdle.

Slavonic Woman and Child

*Mason.—Woman's Share in Primitive Culture.

In taking aboard a passenger, such as this Slavonic woman is carrying, a large shawl is folded triangularly, the child placed in the middle by means of some bench or elevation. The mother takes hold of the two long ends of the shawl with her back to the child, draws the ends over her shoulders and across

Lapland Mother and Child

the breast, around under her arms and the ends are tied underneath the child. Thus the weight comes upon her shoulders, chest, back and hips, while allowing both arms free to carry freight. This is the method usually adopted by the Slavonic and Polish mothers.

The Lapland mother, here shown, was a member of a small colony imported by Uncle Sam to introduce the breeding of reindeer in Alaska. There were about fifteen in the party, and this woman had two children, the younger she carried in this queer looking combination of cradle and sled, which she could carry either across her back, after the manner of a quiver with arrows, or else drag along over the snow as a sled. The picturesque costume was made of furs and skins, while the cap was brilliant with fancy-dyed leather; the large

Lapland Baby

Italian Woman and Child

knife and key that hung from the girdle was undoubtedly the prototype of the modern society girl's "chatelaine." The baby, clad in furs suitable for a cold climate, was protesting most vigorously against his environment.

The elder child had that serious, prematurely-old look, so common among children brought up in rigorous climates.

Quite naturally, the woman from sunny Italy, accustomed as she is to carrying jugs of water and heavy loads of freight

nicely balanced on her head, might sometimes balance a baby, crib and all in this manner.

The Italian baby, accustomed early to the wide bandage with which he is enveloped, somewhat after the manner of a mummy, seems contented under any circumstances. He seldom cries, not even if carried like a shawlstrap by one of the folds of his binder, or under the arm like a a golfbag, or stood in a corner like a bundle of sticks. When it is realized that his parents cannot talk if prevented from gesticulating by tying their hands to their sides, then it may be understood why the Italian baby is silent when immobilized.

Hungarian Mother and Child

The Arab mother carries her baby in the most universally used method—in the left arm; she, nevertheless, swathes it in most gaudily colored clothes, the whole bound around with a heavy knitted or embroidered band.

The Arab mother delights in adorning her baby with many glass bracelets, rings and necklaces. Not satisfied with its natural beauty she must have its arms tatooed, its fingernails stained a rich orange color with "henna," its eyelashes blackened with a sort of "make-up" stage-paint. And to complete her savage "fetishism" she has a small round spot

Arabian Woman and Child

Norwegian Family

burned with a hot iron on the top of the child's head. This, she claims wards off evil influences and especially prevents eye troubles. Of course it was useless to point out to her the numerous adults from her country who had chronic conjunctivitis in spite of the magic scar on the vertex.

This is not a party of Alpine mountain-climbers lashed together, but a Norwegian mother with her numerous brood fastened together with a long rope to prevent loosing them in the "hurly-burly" of landing in America. The mother carries

Indian Woman and Child

the infant in a shawl across the front of the chest, the shawl arranged so as to produce traction on her back and neck.

This is one of our native American Indian mothers and child returning with a wild-west show from Europe. She had long since abandoned the "papoose" frame once used by American Indians from Canada to the tropics. This papoose frame in the north was made of birch-bark, with pillow of

the finest fur. Further south, as the climate became milder, the bark gave place to a little rack or gridiron of sumac or reed, with an awning to protect the face of the child from the sun.

Here we have a basketful of babies, while not an easy way to carry them, is one very comfortable for the babies. Besides, the father is compelled to lend a hand and carry one end of the basket. This seems like an entirely improvised way of carrying them, one rather to utilize the basket than to economize force, just as immigrants, with that strange, sentimental aversion to parting with some bulky object of household use, such as a huge wooden trough hewn from a log of wood and used at home for mixing dough, will utilize it "en route" as a receptacle in which to carry the baby.

"One Method of Carrying Babies"

"Swedes"

PSEUDOAPPENDICITIS IN CHILDREN.

By Louis Fischer, M.D.,
Visiting Physician to the Willard Parker and Riverside Hospitals.

THE diagnosis of appendicitis is sometimes easily made; at other times it is very obscure. It is not infrequent to find a child with symptoms so strongly resembling appendicitis that an operation will be proposed. Two cases of this kind were recently seen by the writer.

Maggie W., 10 years old, was perfectly healthy until the time of her present illness. She was suddenly attacked with pain, which was localized in the right hypochondriac region; the pain was very acute and was increased on pressure; the abdomen was distended and quite tympanitic on percussion; there was a marked dullness in the ileocecal region; there was intense vomiting, the vomit containing particles of food along with mucus and bile and had a very offensive odor. The child vomited several times in one hour and seemed to vomit whenever the pain was most acute. The mother stated that the child had a regular movement of the bowels once in twenty-four hours, that she had had a movement that day and that her appetite had been quite good. She was a very strong and well nourished child with no evidence of organic disease; there was no hysterical element; the child complained of no other pain but that directed to this abdominal condition; there was no history of improper diet nor was there a history of traumatism; the heart-sounds were normal; no murmurs were audible, the lungs were normal on percussion and auscultation; the liver did not seem to be enlarged; the spleen was palpable but not enlarged; the temperature was 104°, taken in the rectum; pulse 110; respiration 20.

When first seen an ice-bag had been applied over the most tender spot in the abdomen. Codeine in 1-6 grain doses had been administered and a liquid diet prescribed. The child was first seen by me about twenty hours after the commencement of her illness with the above-named conditions. As this case had been seen by another colleague I was requested to meet him in consultation. The diagnosis of perityphilitic ab-

scess had been made and an operation advised. The diagnosis was not so positive owing to the history of overeating. The child partook of many kinds of cake and pastries while celebrating a birthday, and an overloaded stomach appeared most plausible. Hence an acute catarrhal gastritis was diagnosed. The pain and tenderness in the abdomen was ascribed to a colicky condition, resulting from fermentative processes in the stomach and extending into the intestine. The indication was to cleanse the stomach and bowels as rapidly as possible and thus remove the toxemic condition which existed. Meanwhile an operation was not considered until the above measures were used.

The urine was examined and showed a large excess of phosphates; no albumin, no sugar, no casts, no diazo-reaction; hence we excluded typhoid. There was a very strong indican reaction and this latter strengthened the diagnosis of fermentation due to intestinal putrefaction.

The Treatment.—I suggested the use of a very high enema with a long tube reaching into the colon; the enema consisting of 1 pint of glycerine diluted with 2 pints of warm water; the temperature of the same was 102° F. The enema was very effectual and brought away a large amount of gas. The temperature which, as above stated, was 104°, fell to 102° within one hour and gradually returned to normal in twelve hours, although no other antipyretic measure was used. Small doses of citrate of magnesia were ordered, a tablespoonful per mouth to quench thirst and at the same time to have a slight laxative effect. A liquid diet was continued, and thirty-six hours after the above remedies were ordered the child was in a normal condition.

Cmse 2.—A female child, about 10 years old, was seen by me through the courtesy of Dr. L. Harris, with severe abdominal symptoms. The most prominent symptom was an intense pain localized in the right hypochondriac region, more especially in the ileocecal region. There was a marked distension of the whole abdomen; there was constipation and vomiting; the temperature ranged between 102° and 103°; the pulse, which was 110, rose to 120. The child complained of an intense headache; in the beginning she also had a chill. The history, as given to me by Dr. Harris, was that the child had fallen from a fence on which she was standing, in the yard, a distance

of about 3 feet. He believed that she had injured herself. The doctor's diagnosis was peritonitis from traumatism. In this diagnosis I concurred. There was no distinct localized area of pain, but rather a diffused area of pain extending over the whole of the abdomen, which was intensified in the immediate locality of the injury. There were no chills; there were no rigors; the temperature rose gradually; there was no evidence of suppuration and none suspected. The child was placed on a carefully restricted liquid diet, consisting of broth, soup, strained gruel, milk, white of egg, albumin in various forms and in addition thereto opium in the form of deodorized tincture was given to alleviate pain. Attention was directed to the bowel and an enema was given to flush the rectum and colon and relieve accumulated feces.

Another colleague saw this child and diagnosed appendicitis, and suggested immediate operative treatment. I was again requested by the attending physician, Dr. Harris, to meet with this other colleague, and as a result, we decided not to have operative interference until we were satisfied that we were dealing with a purulent case. Palliative measures were used, such as ice, locally. In addition thereto the most absolute rest was enjoined, and the child made a brilliant recovery without an operation. We were satisfied that we were dealing with a traumatic peritonitis in which the local area of pain was due to the traumatism.

A careful review of the above two cases will show that when the diagnosis of appendicitis is made by a process of exclusion then greater care should be exercised before resorting to extreme measures.

In the first case the high temperature and the suddenness of the attack certainly showed marked symptoms pointing towards appendicitis. The high temperature was due to the toxemic condition resulting from impacted feces. The pain was an enteralgia due to a distended gut filled with gas. Such colicky conditions are so frequent in young infants that we could operate very frequently if the diagnosis of appendicitis were made every time an infant screams with pain. The cases above reported are very interesting as showing that cases will frequently have symptoms resembling perityphlitis or perityphlitic abscess, so that a differential diagnosis will be very hard to make. Not infrequently cases of appendicitis will be overlooked, and when such is the case, if they are of

the catarrhal type, no harm will ensue therefrom. On the other hand, I must not be understood as disparaging the idea that no case of appendicitis requires an operation, but my object in calling attention to these two cases is to offer a plea that before a case of supposed appendicitis is subjected to an operation, that we should be sure that all other conditions, such as impacted feces, as in my first case, and other allied conditions have been excluded in the diagnosis.

65 East Ninetieth Street.

THE WORSTED TRUSS.

The simple means of treatment in medicine and surgery are alike attractive to the patient and the practitioner on account of cheapness for the former and ready availability for the latter. No truss for the retention and cure of hernia in children, says J. C. Hubbard (*Annals of Surg.*, October, 1901), is any better than a skein of worsted. As a rule, a whole skein is too bulky and hence should be halved. It is applied by placing the loop-end over the external abdominal ring, passing the skein across the abdomen to the left, horizontally across the back, thence forward over the right loin and groin to the ring, through the loop already there, over the internal surface of the thigh and perineum, upward over the buttock to meet the horizontal reach across the back, to which it is tied after the hernia has been replaced and the truss tightened to retain it. This truss irritates the skin only when soiled, can be washed repeatedly until its softness and elasticity are gone, and is renewable at a very moderate cost. As in the case of all truss-treatment in hernias, the watchfulness of the mother is as much a factor in the result as is anything else. In about two-thirds of the cases so treated cure or improvement has resulted. In the others operation alone was efficacious.—*News.*

REPORT OF TWO CASES OF EPILEPSY.

By J. M. Krim, M.D.,
Louisville, Ky.

I DESIRE to report two cases of epilepsy which were under my personal observation from the beginning of the malady until its final cessation. I hope you will therefore pardon me for mentioning what may appear more or less monotonous details.

Case 1.—L. R., female, now aged 17 years, had been a perfectly healthy child up to the fifth year, when she had an attack of cerebrospinal meningitis from which she made a tardy recovery, being unable to walk for six weeks after convalescence, and not able to converse so as to be understood for two months. She gradually improved, however, and for two months there seemed to be no further trouble, when one evening I received a call to come to the house in haste as the mother believed the child was dying.

When I arrived the mother informed me the child had had a severe convulsion lasting about fifteen minutes and had then lapsed into the stupor in which I found her, from which she was with difficulty aroused and after being aroused she quickly relapsed.

Believing the trouble to be due to congestion of the brain I had leeches applied to the temples and an ice-cap to the head, and also gave a high enema which relaxed the bowels freely in about one and a half hours. When she emerged from the stupor she was very weak but conscious. She slept well that night and felt comparatively well the following morning, but had a similar attack in the afternoon. I was fortunately present when the attack came on, and the stupor lasted but half an hour when she aroused but said that she felt tired.

This condition continued to recur usually once or twice a week but sometimes there was an intermission of two or three weeks. After numerous consultations and varied medications with no permanent improvement, the father decided to take her to Germany. After six months abroad with no better results he returned to New York and consulted several specialists who advised an operation. Going on to Philadelphia he

consulted several specialists there who also advised operation. Being adverse to an operation he returned home and she again came under my care. I again went through the materia medica in search of suitable medication and finally stuck to the bromides, achieving the best results from them. I finally prevailed upon the parents to try the operative method to which they consented, the operation being done in Philadelphia four years ago without any special results. She was free from the attacks two months only when she was again placed on the bromides.

Three years ago during one of the attacks she fell and struck her head, producing a slight abrasion above the left ear which the parents failed to notice as it was obscured by the hair. Five days later I was called to see her as she was delirious and had some fever. On examination I found her temperature 104° F.; pulse 130; slight swelling and redness above the right ear. After separating the matted hair I pulled off a crust and the abrasion was then washed with peroxide, dusted with iodoform and bandaged. The following morning there was considerable edema of scalp and face with increased redness, a moderate-sized vesicle on the forehead and one on the right cheek, showing conclusively that erysipelas had developed. Having shaved the head, I had applied warm diluted lead lotion. The next morning, or the eighth day after the injury, the redness extended down to the chest and to the scapula, involving both shoulders, the eyes being also closed from the swelling. The lymphatics of the neck were considerably enlarged, also the right submaxillary glands. Discovering some fluctuation about the scalp, I made several incisions liberating some thin, discolored pus, then washed the wounds thoroughly with peroxide. This procedure was repeated whenever fluctuation appeared. Fully twenty incisions were made at different times over the head, neck, back, chest and arms. For three weeks she was certainly the sickest mortal that I have seen to get well during my practice. However, after several weeks of struggle she was fairly convalescent. During all this time she had but one attack of epilepsy, which was on the fourth day after the injury, and has had none since, nearly three years now having elapsed.

Case 2.—G. S., male, now aged 18 years. When 8 years old, while playing with some companions he was pushed over

an embankment, striking the right side of his head on a projecting and pointed rock which penetrated the skull about 1 inch above and 1½ inches in front of the ear, producing also a stellate fracture. Trephining was practised within an hour after the injury and the depressed bone removed. Moderate hemorrhage followed which washed out small particles of brain matter. Bleeding was easily controlled and the operation was soon completed. He made an uninterrupted recovery.

Eight months later the teacher noticed that at various times when called upon to say his lessons, he would suddenly stop reading, tremble and reel, as if he was going to fall. His mother was informed and she kept him from school. She also noticed this condition occurring two or three times a week. The boy was brought to my office and I carefully examined the site of the former injury as I thought there might be some pressure exerted upon the brain, or that the cicatrix might be responsible for the trouble, but failed to find anything wrong. However, the former operator was called in consultation and the site of the original injury was reopened but nothing abnormal was found. I placed the patient on bromides with good results; they apparently controlled the attacks, making the intervals longer—three to six weeks.

About one year later while playing ball he was hit with a ball over the former injury and knocked senseless, remaining so for hours. Examinatiou revealed nothing more than a swelling where the ball had struck him, which disappeared after cold applications. The next day he complained of headache, the former epileptic attacks returned, becoming more and more frequent even under large doses of bromides. I then tried various other remedies with less favorable results, and fell back upon the bromides again with increased doses (intermitting two or three weeks). This treatment was continued up to his fourteenth year, when he had a severe attack of typhoid fever of ten weeks duration; during and after this and up to the present time he has had no further attacks of epilepsy.

DISCUSSION.

Dr. F. W. Samuel.—The last case reported is an interesting one because the injury occurred at a point just over the leg center and the history shows that the patient had weak-

ness of the leg before vertigo supervened. The conditions in this case certainly indicated surgical intervention.

Dr. T. P. Satterwhite.—The second case was one calling for surgical intervention and an operation ought to have been performed.

Dr. J. W. Irwin.—It is evident that the epilepsy was due to a different cause in the two cases reported. The first case, as I understand it, had been the subject of cerebrospinal meningitis. The second case was one of traumatism.

In the first case reported there was a profound septic condition of the brain—inflammatory deposits there, serum, lymph and perhaps pus, and the ravages of bacteria. It would be hard to say whether the morbid matter was acting on any local or special point in the brain. It might have affected the psychical center, or any general or special center, or it might have affected the cortical layer of the motor center alone.

In the first case I think the patient would have been better treated without any surgical procedure. It is true that there are but few recoveries from epilepsy. The statistics of America show only 2 per cent. of recoveries, while in Europe they report 2½ per cent. of recoveries.

In the second case the epilepsy was due to a local cause, the so-called Jacksonian epilepsy. We know there was a traumatic injury in the case which could be accurately located, and there was likely some pressure upon the brain first from the original injury, or, secondly, the cicatrix following the surgical operation. If there was a part of the brain or dura mater removed there was a cicatrix following. If there was merely pressure upon the brain it is reasonable to expect that its removal before it had become habit in the brain would result in a cure. After the epileptic habit has become settled there is no use in an operation. After the habit has lasted for a year and a half it is not to be expected that an operation will effect a cure. In the second case I think the operation was justifiable and it may afford relief for a considerable time, even a cure; but I would fear a return of the epileptic manifestations in the latter case at a more or less remote period.

Dr. J. N. Krim.—I fully agree with Doctor Irwin in all he has said about the first case. In this case there was a dis-

charge from the ear which continued three weeks after the operation. The child started in with cerebrospinal meningitis and it stands to reason that there must have been some injury to either the cord, the brain or the dura mater which acted as a cause of the epileptic seizures. I do not believe it was a case of idiopathic epilepsy.

ADENITIS.

First care should be to remove a possible cause of the enlargement of the glands; an ulceration, a boil, or an inflammatory irritation in centrifugal direction of the involved gland. If no invisible cause, the diathesis should be examined into—lues, tuberculosis, or other constitutional diseases—and treatment applied according to such conditions. In the early stage of acute adenitis, before suppurative signs are present, cold should be applied to the swollen glands or a compress wet with a solution of formaldehyde, carbolic acid, or sublimate, which quite often arrests the induration and prevents the formation of pus. If suppuration already exists, the involved gland or glands should be freely opened and evacuated.

In chronic adenitis, general tonics according to the causal ailment should be administered. Inunctions of green soap every other or third day should be tried when tuberculosis is suspected and iodipin given internally. The most reliable treatment is the radical extirpation of the glands.—*Merck's Archives.*

PRACTICAL NOTES

TREATMENT OF ARTHRITIC ECZEMA IN CHILDREN.

Leullier (*Journal des Praticiens*, August 31, 1901) claims that in children eczema is one of the most frequent manifestations of the arthritic diathesis. Treatment should consist in: (1) Prophylaxis, which consists in having the child breast-fed, allowing it to nurse for a short time at frequent intervals and forbidding the nurse to take alcohol, fermented beverages, spiced foods, or food too rich in nitrogenous elements. (2) General measures: the avoidance of overfeeding. If the child is weaned it should not have much nitrogenous food. Meats, especially red meats, should be given sparingly, and no wine, alcoholic beverages, tea or coffee used. The bowels should be kept regular; green vegetables, cooked fruits, bananas, prunes, marmalade of apples and of pears may be given. Graham bread is the most suitable bread. Hydrotherapy, massage, physical exercise and life in the open air are essential. Alkalines may be given in moderate doses for ten days during a month. Comby often prescribes:

Sodium bicarbonate Calcined magnesia	of each . . 3 grains
Powdered nux vomica	1/6 grain

For one powder; to be taken before meals in a spoonful of sweetened milk.

(2) Local treatment should consist in the application of zinc oxid ointment, to which menthol or salicylic acid may be added in small quantity. Vaselin is often badly borne and may be replaced by benzoated lard, as:

Boric acid Zinc oxid	of each . . . . . 30 grains
Vaselin Benzoated lard	of each . . . . . 5 drams

The following powder may then be dusted over the part:

Salicylic acid	15 grains
Powdered talc Powdered starch Lycopodium	of each . . . . . 5 drams

—*American Medicine.*

MUNICIPAL INFANT-FEEDING BOTTLES.

Municipalties in different parts of the world are taking paternal care of those who are so fortunate as to live under their control. The city fathers in many large centers of population supply the inhabitants with gas, water, means of locomotion and even with dwellings at a cheap rate, and, in addition to these material benefits, provide instruction and amusement for the mind.

Battersea, a large district of London, chiefly populated by the laboring classes, and which was a pioneer in this new movement, has recently decided to make another innovation, and to supply nursing bottles to those persons who apply for them. The infant mortality there has been greatly on the increase within the past few years, due, it was believed, to impure milk and unclean bottles. Having arrived at this conclusion, the municipal council of Battersea at once resolved to take steps to meet the situation, and, according to the *New York Press*, are about to open a station at which the best cow's milk obtainable will be bottled and distributed among the poor of the locality. Nine hermatically sealed nursing bottles of sterilized milk will be supplied daily to each customer at a charge of a little over 30 cents a week, and the station will collect the used bottles every day and supply clean ones in their place. The nine bottles for each day will be packed in a basket, six for use in the day, and three in the night.

Undoubtedly, there is "method in the madness" of Battersea and although the scheme savors more of maternalism than of paternalism, yet if carried out efficiently it will be the means of checking the infant deathrate to a very appreciable degree. Contaminated milk is the cause of more deaths among infants than perhaps any other one cause.

It may be said that the plan just adopted in Battersea has been tried in Fécamp, France, with conspicuous success, the deathrate among infants being reduced in one year from 157 to 103 per thousand.—*Med, Record.*

FURTHER TESTIMONY AS TO THE VALUE OF VACCINATION,

If more was needed, or would be heeded by the antivaccinationists is given by that veteran observer, Dr. William M.

Welch, who recently stated before the Philadelphia County Medical Society in reference to the recent epidemic:

"Not one thus far who has been vaccinated previous to exposure has contracted smallpox. About fifty individuals, including physicians, nurses and attendants, have been continuously and freely exposed to the disease.

"We have, from time to time, received in the hospital persons with well-marked and even fatal smallpox in whom vaccination some weeks before had failed.

"Many physicians hesitate about vaccinating individuals who are suffering from some other disease. At the Municipal Hospital recently scores of patients suffering from diphtheria and scarlet fever were vaccinated as a precautionary measure. The vaccination did not unfavorably influence the original disease, and, on the other hand, the course of the vaccinia was in no case unusual.

"Since the beginning of the present year, about 300 cases of smallpox have been treated at the hospital. Of this number not a single patient had been recently successfully vaccinated. The shortest period elapsing between a successful vaccination and the contraction of the disease was five years. Whilst the majority of the patients admitted were unvaccinated, a very large number had been vaccinated in infancy.

"I believe that it may be laid down as a rule that if a child is successfully vaccinated in infancy, and again at the age of puberty, the protection will be permanent. The exceptions to this rule, however, may be sufficiently frequent to warrant a repetition of the vaccination whenever there is exposure to smallpox."—*American Medicine.*

TREATMENT OF INTUBATION ULCERS.

Johann Bokay reports the successful treatment of five cases after the method of O'Dwyer. This consists in the employment of tubes provided with a narrow neck and coated with a layer of gelatine and alum. In all cases in which intubation has lasted over 100 hours, ulceration is liable to occur and the employment of these tubes is then to be recommended. The gelatinized tube is left in the larynx for five days, at the end of which time it is removed and replaced by a similar tube. This process is repeated three times, at the end of which the ulcer will usually be found to be completely healed.—*Medical Record.*

ABSTRACTS

ESOPHAGOTOMY IN A CHILD OF SIXTEEN MONTHS.

WM, J. TAYLOR (*Therapeutic Gazette*, Oct. 15, 1901) reports this case: A little boy, aged 16 months, on March 18, 1900, swallowed a metal clasp known as a "drawers holder." Immediately after the accident his father tried to remove it, and told me that he was able to touch the upper end with his finger passed well down the throat, but in his effort to extract it without forceps he pushed it farther away from his finger and out of his reach. The baby was fretful for three days and three nights, but was able to nurse, and had no special attacks of dyspnea or pain, although immediately after the clasp was swallowed he was unable to cry out, probably from pressure on the recurrent laryngeal nerve. At no time since then could one hear his cry further than across the room.

On April 5th he was brought to Philadelphia and taken to a hospital, where a fluoroscope was used and an unsuccessful attempt made to take a skiagraph. The child's parents were told at that time by the surgeon who saw him that no foreign body was present. At no time did he vomit blood, and only once was there any bloody mucus discharged, and that was immediately after swallowing the clasp, This was possibly due, in part at least, to the efforts of the father at its extraction. There was no special cough or difficulty in breathing, but there was a great deal of rattling and many rales in the chest. He always nursed well, but had been unable to swallow any form of solid food.

At my request Dr, Leonard etherized the child and made a very careful skiagraph. This when developed showed absolutely the position of the foreign body and also that the clip on the end of the clasp was open. The tip of the clasp was directly on a line with the sternoclavicular articulation.

On October 27th ether was given him at the Orthopedic Hospital and an attempt made to reach the clamp by forceps passed down the esophagus. In this I was unsuccessful, as the distance was too great and it was considered unwise to make a prolonged search. The position of the clasp as afterwards shown would have made an attempt at extraction through the mouth particularly dangerous, and in any subsequent case of the kind I should make no effort whatever to do this if a similar foreign body had been swallowed longer than a few hours.

I then immediately opened the left side of the neck and worked down until I found the esophagus, and through its walls I could feel the sharp points of the clasp. This I did without passing any sound or metal probe down through the mouth to act as a guide. I then opened the esophagus, and here my difficulties began. The large hook in the clasp had evidently ulcerated at least partly through the wall of the esophagus, and in attempting to withdraw it I hooked up and pulled upon probably the bifur-

cation of the bronchus, and the child nearly died in consequence; and it was only with the greatest care and after considerable manipulation that I was able to get the clasp out. The clasp when swallowed was nickel-plated, clean and bright, as it was new, but when it was removed all of the nickel-plating had been cleaned of, evidently by the action of the tissues, not a particle of it remaining. As the opening was made in the esophagus bubbles of air welled up from the lowest and deepest part of the wound, which made me fear for a moment that the wall of the trachea had been ulcerated through, but upon closer inspection it was seen that this was air which had been imprisoned by a valvular flap of soft parts. There was so much ulceration and the tissues were so lacerated that I did not think we could possibly get primary union in the wound, and I therefore drew the edges of the wound in the esophagus together as closely as possible with a few catgut sutures, then closed the upper portion of the external wound with two sutures, and packed the lower portion down to the esophagus with iodoform gauze. The baby was so young that I was afraid not to give it some nourishment by the mouth, and therefore allowed it to nurse, but each time the milk would all run out of the hole in the neck. We kept this up for about forty-eight hours, using in addition nutritive enemata, until I thought it imperative that we get some food into his stomach. I tried to put a catheter down the mouth into the stomach, but could not get past the point in the esophagus from which the clasp was removed without using unjustifiable violence. I then packed the wound in the neck with cotton and made pressure with my finger while the child nursed, and in this way we were able to give it a considerable amount of nourishment, although a great deal escaped from the edges of the wound. During the night the child nursed every four hours, and we soon got the hang of matters so that quite a considerable amount passed into the stomach. Indeed, the stomach was appreciably distended after the nursing. Each time that he was nursed the dressing was removed and a pad of cotton pushed into the wound and held there by firm pressure.

His convalescence was uneventful; the wound closed by granulation and no fluids whatever passed out of the wound after November 16th—twenty days after the operation—and by December 1st the wound was entirely closed. The last heard of the child was on March 25, 1901, when he was reported as being perfectly well and strong and able to eat solid food without any difficulty, Thus far it would seem there is no stricture of the esophagus.

THE SEARCH FOR THE PARASITE OF CANCER.

The problem of the discovery of the parasite of cancer has occupied so much attention lately that there has been danger of forgetting the results obtained by accurate observers. It must not be forgotten that this problem, in spite of the work of Gaylord and Schuler, is perhaps not now much nearer elucidation than it has ever been. Parasites of cancer have been discovered so often by men who are apparently convinced of their absolute authenticity, that the modern sceptical medical man will require the strong-

est evidence and the most thorough confirmation before he is convinced. Indeed, it is not impossible that the problem will never be solved. It would seem the easiest thing in the world to determine the parasite of smallpox. The lesion is circumscribed and specific, and yet it still escapes us. The thousands and hundreds of thousands of sections, cultures and what not that have been made at the Pasteur Institute for the purpose of detecting the organism of hydrophobia, made with the most elaborate appliances and by masters of bacteriological technique, have been utter failures, and yet, therapeutically, smallpox and hydrophobia are both, to a large extent, under our control.

Newcomb has done well to call our attention to the fact that the discoveries that seem most imminent are usually those that are never made, and he instances, as of course a mathematician would, the tri-section of an angle, the squaring of a circle and the doubling of a cube, and it may be that these problems are not more difficult than the discovery of the parasites of smallpox, hydrophobia and carcinoma. It behooves us then to turn to clinical experiences in order to ascertain if possible what benefit is to be derived from the methods of treatment already in vogue.—*Philadelphia Medical Journal.*

HOSPITAL MANAGEMENT.

D. A. Goldspohn, of Chicago, concludes an interesting article on this subject (*Bull. Am. Acad. Med.*, Oct. 1901), as follows:

1. A crying need of our time is the emancipation of all our public (governmental) medical institutions from politics. The appointment of all directors, superintendents and chief physicians in these institutions should be made by a non-partisan state medical civil service commission or board of health, either directly or strictly according to the recommendations of such a commission. And their tenure of service should be determined by their efficiency,

2. A charter from the state or a license from a local board of health, or both, should be obtainable by the promoters of all private asylums, hospitals, infirmaries and training schools for nurses, *only after* the general feasibility and probable success of the proposed undertaking have been considered and adjudged favorab'y by a supervising state medical commission, such as is herein contemplated.

3. Every such institution should be constructed, organized and conducted according to the specific statutory standards and requirements, to be formulated by the aforesaid board or commission.

4. No superintendent or matron in any such institution should be eligible for appointment for such a position, unless he or she has given evidence of sufficient general and medical capability to the supervising state board of health, and has been registered by it in the manner that physicians and druggists are now.

5. The charter or license of each of these institutions should provide that no member of its active or consulting medical staff can be appointed by a layman or by an aggregation of laymen, except upon the recommendation of each candidate by a generally recognized and creditable

local medical society that is acceptable to both the supervising state board and to the parties desiring to make medical appointments.

6. Furthermore, the charter or license in each case should provide that the institution shall pay an annual reasonable fee for a yearly inspection by a member or a representative of the state supervising board of health and should receive a certificate therefor.

TREATMENT OF INFANTILE DIARRHEA.

Wm. H. Robey, Jr. (*Phila, Med. Jour.*, July 27, 1901) says the treatment is obviously:

1. To cleanse the bowel of the bacteria and their toxic products.

2. To give the remaining bacteria as unfavorable conditions as possible for further production.

3. To soothe the irritated intestine where the continuance of the condition makes this necessary.

4. To support the patient against constitutional symptoms, as fever, nervous irritability, etc., as in other acute diseases of childhood.

5. To guard against infection of others by isolation when possible and by carefully washing the hands after handling the stools in order not to infect other food and common household articles.

Naturally the small intestine must be cleansed by a purge, and for this purpose, calomel 1 gr., was given in 1-10 gr. doses at ½ hour intervals. It has been asked why castor oil was not given since it has such soothing properties. In treating infantile diarrhea, especially in dispensary practice, one must try to accomplish as much as possible at the first visit for obvious reasons. The gastrointestinal tract of the infant being in an irritable state, the oil is more apt to be vomited; whereas, I have never known this result with calomel; in fact, it will allay vomiting should that dangerous symptom be present. Furthermore, castor oil is such a common household remedy that it may have been tried already, while calomel in divided doses keeps the mother busy and aids her patience in carrying out the second important step in the treatment—starvation.

Each case of diarrhea before leaving the hospital had the bowel washed out by a trained nurse. This was done by passing a large soft-rubber catheter into the bowel allowing the tepid normal salt solution to flow in during the passage, thus dilating the bowel and facilitating the introduction. At least 2 quarts of the salt solution were allowed to run in, the bag of the fountain syringe being held about 3 feet above the table.

The character of the washings from each case was noted and a record made of the reaction, odor, color, presence of curds, fat globules, mucus, blood and membrane. The color and odor may, however, alter in a few hours. The washing was repeated upon as many successive days as the case required; being out-patients it could not be done oftener—twice daily he thinks sufficient.

As important as cleansing the bowel of the toxic products is not to give the gastrointestinal tract more work to do nor the remaining bacteria

any more culture media upon which to grow and thus continue the production of toxins. Hence food was withheld for twenty-four hours and albumin water (whites of two eggs added to a pint of boiled water with a pinch of salt and a teaspoonful of brandy) was given—a half teacupful every two hours. Sterile water could be given just as well, but in dispensary practice especially the mother is more ready to carry out this very important part of the treatment if she is giving what she considers to be a food.

It is a good plan to tell mothers going into the country with their children to stop food for twenty-four hours at the very onset of a diarrhea. If there is vomiting the stomach must be washed out as well as the bowel, and this can be done with the same kind of catheter. If the temperature is high and the nervous symptoms marked, a tepid bath will be a valuable addition to the treatment. This was employed in some of the cases before they left the dispensary, but in the majority of our cases the temperature not being high, the desired effect was produced by the enema.

After twenty-four hours the majority of cases require no further medication and depend for continued improvement upon the gradual resumption of food. All cases were put upon a weak modification of sterilized milk, the point being to have the percentages low enough. He did not find it necessary to use dextrinized barley water or other starch foods the very dilute alkaline milk mixtures being sufficient.

As we have shown as the outset, breast-fed babies seldom have diarrhea, and when they do are easily returned to the breast after twenty-four hours' starvation, especially if the interval between feedings is increased. Where there was still some irritability of the bowel the subnitrate of bismuth was given in at least 20 gr. doses every three hours. Where bismuth was given immediately without the initial purge the results were unsatisfactory, and in almost every case where it was tried the treatment had to begin over again upon the following day. Opium was used only where pain was a marked symptom, and then only where the stools were frequent, since the danger of opium in stopping peristalsis and thus favoring absorption from the bowel is very well known. The necessity of cleanliness, pure food and fresh air was carefully explained to every mother.

A small number of his cases which showed no improvement after three days were referred to the Boston Floating Hospital, where the required treatment could be carried out under proper atmospheric conditions.

TRANSMUTATION OF SKIN DISEASES.

A number of fungi attack the human skin. One of them produces pityriasis versicolor, another favus, another ringworm, and it is thought that there are two or three kinds of ringworm. Mr. Hutchinson suggests that these diseases are transmutable. He believes that from the fungus of common ringworm of the scalp tinea versicolor of an adult can be produced. He has seen many instances in which young nurses attending children the subjects of ringworm have developed, not ringworm, but tinea versicolor on the chest. There may be a modification of the fungus

growth and the same fungus may produce the two. Large fungus ringworm and the small fungus ringworm are also probably the same; and the fungus which produces favus, which is much less common, is only a very modified form of that which produces ordinary ringworm. A great lesson in caution on this point is to be derived from the rust on wheat—a disease in which the leaf becomes brown all over and dies prematurely. How to prevent it was an urgent question with agriculturists. Farmers observed that where the common barberry grew in the hedges there was likely to be rust in the wheat. Botanists were questioned on this point and they at once declared there was no connection, The fungus which grew on the barberry and that which was produced on the wheat they said belonged to totally different species. The farmers protested that where the barberry grew there was rust. Notwithstanding the opinion of the botanists they felt that there was some connection, and they acted upon their belief by getting rid of the barberry trees to prevent the rust on their wheat. A law was passed in the State of Massachusetts compelling farmers to exterminate all barberry trees in their hedges. Then came the great discovery, which is now illustrated in many departments of fungology, that the fungus is one which requires two different hosts; in one host it produces one special spore and in another another spore. It develops on the barberry and then being blown off takes root on the wheat and spreads over the wheat-fields. There is a transmutation of the fungus due to the different environment and it is thus seen in different stages of development. So in many forms of disease further observation will probably simplify our conceptions, and many of the diseases which have been considered separate will be found not to be so, or not so much so as has been thought.—*Medical Review*, London.

OCULAR DISEASE IN CHILDHOOD ASSOCIATED WITH IMPAIRED GENERAL NUTRITION.

Dr. S. D. Risley, in a paper with the above title, did not attempt to discuss the more frequently occurring forms of strumous eye disease in very young children, but gave briefly the clinical history of two cases to illustrate a form of ocular disease frequently occurring during adolescence, though not necessarily dependent upon the peculiar conditions of the vitality at that age. He gave a description of the attendant symptoms, general malaise, variability of temper, precarious appetite, intermittent albuminuria, high specific gravity of the urine, excessive urates and frequent disposition of red crystals. In both cases boggy turbinates and pharyngeal adenoids developed and the eyes passed while under observation from hypermetropic to myopic astigmatism. This change of refraction through distention of the eyeballs was preceded and accompanied by retinochoroidal disease, impaired sharpness of vision, photophobia, injected conjunctive, frontooccipital headache and general nervous symptoms; in one case by minor chorea. In discussing the conditions presented by this group of patients, Dr. Risley raised the inquiry whether, on the one hand, given the general impaired metabolism and

the absence of congenital astigmatism, the ocular conditions would have occurred. He believed that they would not, but said that, given the abnormal refractive condition, the ocular disease and stretching of the balls that had been observed was much more liable to occur in the presence of abnormal general nutrition. In concluding he called attention to the important influence the trials of school life may exercise on the general health when associated with headache and painful, hot eyes, due to abnormal refraction.

STERILITY OF AMERICAN WOMEN.

In the *Ann. of Gyn. and Ped.*, Dr. G. J, Englemann states that sterility, undoubtedly increasing everywhere to some extent, hand in hand with the well known decrease of fecundity, has increased to an alarming extent in the United States as fecundity has diminished more rapidly than in other countries. From a sterility of 2 per cent. in the Eighteenth Century and a fecundity of five children to the marriage, conditions better than in any other country, and such as led to the Malthusian theory of superfecundation and the fear of overpopulating the earth, we have come, after a lapse of one century, to the other extreme—a sterility greater and fecundity less than that of the women of any other nation, unless it be France. He calls attention to the frequency of miscarriage and divorce as concomitant with and the cause of steriiity. Barrenness is not due largely to physical causes, he thinks, but generally to intentional miscarriage or the prevention of conception. The tables show that the normal average of sterility among married women is 11 per cent. Under the most favorable conditions now found it is 2.5 per cent. In the American colonies during the Eighteenth Century it was 3 per cent. In the United States now it is 21 to 23 per cent., or 33 per cent. among college graduates. The average number of children to each marriage should be 4.5; French Canadians average 9; in the United States the average is 1.8, or 1.4 to college graduates. The average number of full-term labors to one abortion is 5.5; in the United States the proportion is 2.8 to 1. In the United States there are now 18 7 marriages to one divorce "—*Maryland Medical Journal.*

VACCINATION AND TETANUS.

The occurrence of tetanus in some children during the course of vaccination in a neighboring city has probably led to a great deal of unnecessary alarm in reference to the accidental dangers of vaccination. In a careful search of statistics in reference to the previously mentioned condition it is found that almost invariably is tetanus an accidental complication and in no wise due to the virus itself. Tetanus is liable to occur in the vaccine pock, as it is liable to occur in any open wound by admixture of dirt and filth and similar material. We doubt whether there is a well authenticated case on record in which It has been proven that the occurrence of tetanus during the course of vaccination has been due di-

rectly or indirectly to the virus used in vaccinating. The same also holds true of cancer and tuberculosis. Careless vaccinating, dirty hands, dirty instruments, failure to wash the skin upon which vaccination is to be performed, handling of the wound by the patient, such as scratching, etc., are all causes for the occurrence of tetanus in a vaccinated person. The operation of vaccination, while it is a simple one, must nevertheless be carried out with extraordinary care. The instruments should be scrupulously clean and the part upon which vaccination is to be performed should be carefully washed with soap, water and alcohol. It is not wise to use the ordinary antiseptic solutions, as they are liable to destroy the efficacy of the virus. We are certain that the prophylaxis which will effectually prevent the occurrence of tetanus in vaccination is cleanliness.—Editorial, *Philadelphia Med. Jour.*

TONSILLOTOMY RASH.

Wyatt Wingrave (*Lancet*, August 31, p. 591) says: An eruption following operations, often referred to as "surgical rash," is familiar, but its association with the removal of tonsils and adenoids is perhaps not so widely recognized. The writer's records at the London Central Throat and Ear Hospital and notes of private cases reveal 34 cases in seven years. Although this is but a small percentage he is confident from recent experience that they represent only a portion of those which occur. Of the 34 cases, in 3 (which occurred in in-patients) the condition proved to be scarlet fever, while in one diphtheria developed. The remainder were simple non-specific cases.

The eruption generally appears on the second or third day, and is papular, roseolar, or erythematous. It most frequently affects the neck, chest and abdomen, and sometimes extends to the face and the limbs. The earliest appearance noted was the day following operation, the latest the sixth day. The duration is generally two or three days, but may extend to five. After reaching a maximum the rash rapidly disappears without desquamation but is sometimes associated with intense itching. As a rule there is but slight constitutional disturbance. The temperature was increased only from 1° to 2° F. The blood during the week following the operation with few exceptions showed an increase in the number of the mononuclear white corpuscles.—*Med. Review.*

THE TREATMENT OF RICKETS WITH SUPRARENAL GLAND.

Hönigsberger (*Munch. Med. Woch.*, April 16, p. 627) cannot confirm Stoeltzner's estimate of the utility of suprarenal gland in rickets (*Review*, vol. iii, p. 230). He began with a daily dose of as many centigrammes as the child weighed in kilogrammes and increased this up to double the amount or more. The substance had no specific effect, though the general health was sometimes improved by its action on the circulation and respiratory center. The same result is obtainable, however, with many much cheaper drugs.—*Med. Review.*

THE DECREASED BIRTH RATE IN FRANCE.

The gradual but steady and progressive decline in the population of France has long excited feelings of distrust and concern among all thoughtful people. Not only is the birthrate smaller than in any European land, but the infant mortality is also extremely high. This state of affairs has been recently recognized by the government as one to which attention must be paid,and steps be taken to provide if possible remedies to combat the evil. According to the *New York Sun*, November 24,1901, a debate took place on the subject in the Senate on November 23d, when the Premier, M. Waldeck-Rousseau, accepted in the name of the government, a proposal for the nomination of an extra parliamentary commission, to seek means of increasing the birthrate and diminishing the mortality.

That France has failed to keep pace in point of population with the other large nations of Europe will be clearly evident when it is stated that at the commencement of the nineteenth century France had 26,000,000 inhabitants, Germany 15,000,000 inhabitants, and England 12,000,000 inhabitants. Now France has 38,000,000 inhabitants, Germany 56,000,000, and England 41,000,000.

The remedies recommended by one senator were the adoption of fiscal measures in favor of large families, and, above all, of legislation to check the terrible mortality among infants.

The high deathrate among infants is largely attributed to the pernicious habit of baby farming which prevails among the rich and upper middle classes of France, while probably one of the causes of the low birthrate, is the fact that a large number of the French people are too penurious to desire the expense of raising a large family. France, however, has now come to the conclusion that such a system is in the long run one of false economy.—Editorial, *Med. Record.*

BARRING OUT CONSUMPTIVE IMMIGRANTS.

The case of the man, Thomas Boden, whom the United States Treasury officials ordered to be taken back to Ireland, because he had tuberculosis, which they held to be a "loathsome or dangerous disease," and consequently a bar to admission to this country,was passed upon recently in Brooklyn. Judge Edward B. Thomas decided in favor of the ruling of the Treasury Department, and unless the case is appealed the man will be deported. His wife and child will return with him. He arrived here on November 9, 1901. Physicians examined him on his arrival, and whan they reached the decision that he was suffering from tuberculosis he was sent as a temporary patient to the Long Island College Hospital. The Treasury Department, on special appeal, ordered another examination and the original diagnosis was confirmed. It was then ordered that he be deported, but relatives took the case to the United States Court for decision.—*Medical Record.*

THE INVESTIGATION OF THE TETANUS CASES IN ST. LOUIS.

A special commission, composed of the mayor of St. Louis; Dr. Max Starkloff, health commissioner of the city; the president of the city council; Dr. Merrel and Dr. Chapman, of the board of health; Police Commissioner Blong and Councilmen Speigelhalter, Hoffmann and Gibson, was convened on the afternoon of December 5, 1901. to investigate the recent deaths from tetanus attributed to the administration of diphtheria antitoxin prepared under the direction of the St. Louis Board of Health, At the first session the commission was organized, the mayor being chosen as presiding officer, and the secretary of the board of health being made secretary of the commission. At the second session of the commission, held on December 10th, Martin Schmidt, assistant city bacteriologist, offered startling testimony. According to the press dispatches, he declared that Dr. Amand Ravold, the city bacteriologist, had directed him on October 3d to prepare for distribution the serum secured from the horse "Jim," which had been shot the day before because it had tetanus.

"Dr. Ravold told me," said Schmidt, "that the serum could be safely used, as the horse had not been affected with tetanus on September 29th, when the drawing was made. I knew," the witness declared, "that the serum was poisonous and unfit for use on human beings, but I felt that I could not question Dr. Ravold's order. So I went ahead and carried out the orders."

The witness repeated his recent assertions before the coroner, that the poisoned serum was sent out to physicians without being first tested on guinea-pigs.

"It was difficult to obtain good guinea-pigs," said Schmidt. "All the available pigs had been used for tests during the summer, and hence were not in a fit condition for antitoxin tests. I do not know of any tests of the last drawing of antitoxin being made. If such tests had been made I would have known of it."

Schmidt testified further that the serum was kept unlabelled in the ice-box and that the drawings at different dates were identified only in the mind of the colored janitor.—*N. Y. Med. Jour.* Dec 14, 1901.

THE REPORT OF THE COMMITTEE ON TETANUS INQUIRY IN ST. LOUIS.

The commission appointed to investigate the cases of tetanus following the use of diphtheria antitoxin made an exhaustive report and one well worthy of the importance of the question under consideration. The committee, composed of Drs. Bolton, Fisch and Walden, all competent bacteriologists, arrived unanimously at the following conclusions.

"As the result of our investigations we draw the following conslusions:

"The diphtheria antitoxin prepared by the Health Department of the city of St. Louis, and dated September 30, and some of the serum

dated August 24, was the cause of the recent deaths from tetanus in the cases where this antitoxin was used.

"This antitoxin was sterile, but contained the toxin of the tetanus bacillus in considerable amount.

"There were two different sera issued under the date of August 24th. One portion not containing the tetanus toxin and characterized by other properties, while the other contained the tetanus toxin and was identical with the serum bearing the date of September 30.

"The most important result we have arrived at is the positive demonstration that the toxic serum dated August 24 and that dated September 30 are identical. From this we conclude that the serum of September 30 was issued without having been tested by the proper methods, and that a part of it was filled into bottles bearing the date of August 24, or furnished with labels having previously been stamped with this date. We are justified in drawing this conclusion from two observations: First, that the serum of September 30 was issued before there was time to have performed the simple tests necessary to determine the antitoxic potency of the serum; second, in the same way, serum dated October 23 came into our possession on November 1. This serum has been issued to physicians by the Health Department, and by them returned to the coroner. It is obvious from this that no animal experiments could have been made with this antitoxin. As this was the case with the serum of October 23, it is the natural inference that the serum of September 30 was issued in the same way.

"We must deny any possibility of latent tetanus having existed in the horse "Jim" from August 24 to September 30 as no well authenticated cases have been reported in which the incubation period extended over seven days, in experiments directed to test this point. The period of incubation cannot be determined from clinical observation, from the nature of the case.

"It therefore follows from this that the serum drawn on August 24 was free from tetanus, but that the serum of September 30 was drawn during the period of incubation, and had it been tested upon animals it must necessarily have revealed its toxic properties.

"Frem the foregoing facts we are forced to conclude that the diphtheria antitoxin prepared by the city Health Department has been issued before it was possible to have obtained results from the absolutely necessary tests, Had these tests been performed the results upon animals would have been such that the serum would not have been dispensed, and the cases of tetanus forming the basis of this report could not have resulted."—*Medical Fortnightly*, Dec. 10, 1901.

LUMBAR PUNCTURE IN TUBERCULOUS MENINGITIS.

J. K. Friedjung (*Wiener klinische Wochenschrift*) is not inclined to attach too great diagnostic or therapeutic value to this procedure. Headache may sometimes be relieved by it, and possibly may be prolonged slightly, but this is doubtful. As regards diagnosis, a clear fluid obtained

on puncture is an indication of a tuberculous rather than a purulent process; but the converse is not true, and cloudy serum may be obtained in cases that are of tuberculous origin. During the stage of irritation the tubercle bacillus is to be found in smears in 33 per cent., in the stage of pressure in 50 per cent., and in that of paralysis in 75 per cent. of the cases. That is during the earlier periods, when its aid is most needed, the method is least helpful, while at the same time when it is likely to give positive results the clinical picture is usually too clearly cut to require confirmation in this way.—*Med. Record.*

THE VALUE OF THE WIDAL REACTION IN THE DIAGNOSIS OF TYPHOID FEVER IN CHILDREN.

Milton Gershel (*Med. Record*, Nov. 23, 1901) says that while the value of the Widal reaction is generally recognized and numerous statistics on cases in adults are available, it would appear that the value of the reaction in children has not been sufficiently emphasize, and that there are lacking statistics based on a large number of cases. It is a matter of common knowledge that typhoid fever in children, and particularly in young children, is apt to be atypical in its course and often difficult of diagnosis. Some of the causes of these difficulties are the following:

The temperature curve in children is apt to be irregular or even intermittent; the date of the onset is very difficult to determine. Furthermore, in a number of cases the spleen is not enlarged, and the intestinal symptoms are mild or lacking.

A further cause of confusion is the frequency of enlargement of the spleen in anemic and rachitic children, and the frequency of enlargement of the spleen due to all varieties of enteric trouble, which condition, if the child suffers from prolonged fever, may give rise to an unwarranted suspicion that typhoid fever is present.

A dilution of 1 to 20 was used in all cases. Where the Widal reaction came as a surprise, or in other words, in cases in which typhoid fever had not been seriously considered, the reaction was repeated in the dilution of 1 to 50. Such reactions were always positive. Dried blood was used for all the tests except in a few cases where the Widal reaction remained negative throughout the course of typical cases of typhoid fever. Serum was then substituted for the dried blood with no different result. Altogether, 670 tests were made in 199 cases. Eighty-four of these cases were instances of typhoid fever and the other 115 were febrile cases of the greatest variety, such as miliary tuberculosis, meningitis, pneumonia, endocarditis, septic conditions, etc.

In a number of these the existence of typhoid fever could not be excluded at the outset. In all cases the Widal reaction was made daily until a positive reaction was obtained, or until the diagnosis had been cleared up by other methods.

In the 84 cases of typhoid fever he obtained positive results in 81. In all, 329 examinations were made. In these cases, repeated tests were necessary before 45 of the cases developed positive reactions, while 36

cases gave the reaction on the first examination. The patients ranged between one and a half and fourteen years of age.

Only 13 per cent. were positive by the end of the seventh day; 63 per cent. by the fifteenth day, and 89 per cent. by the twenty-fifth day.

Morse found that the reaction seldom appeared before the second week, and says therefore that the test is of little value up to that time. Musser found the reaction in no case earlier than the seventh day, while in his series 11 cases had given the reaction by that time. Pfaundler and Abelman both reported their earliest Widals as occurring on the fifth day of the disease. Blackader, from a series of 43 cases of typhoid fever in children, reports that before the end of the second week he had obtained positive results in 70 per cent. of the cases.

In no instance, among the 341 examinations made in the cases which were clinically not instances of typhoid fever, was a positive reaction ever obtained. On the other hand, as noted, three of Gershel's cases of typhoid fever never gave a reaction at any time. These cases were undoubted instances of typhoid fever clinically. They were also very carefully watched and repeated examinations made daily, the blood in the third case having been examined thirty-seven times.

As a reason for the persistent absence of the reaction in these cases, an explanation might have been offered which has been offered in similar cases in which the Widal reaction has remained repeatedly negative, and that is that the Widal reaction had disappeared before the patient had arrived at the hospital. But the patients came in too early for such an occurrence to have been possible. It must also be noted that in a number of instances the day on which the reaction first became positive belonged to the period of convalescence or relapse.

From the author's experience he would say that a negative reaction in any fever case means very little as regards the existence or absence of typhoid fever.

CONCLUSIONS.

1. The main facts concerning the Widal reaction in children are the same as those that hold true for adults.
2. In 84 cases of typhoid fever in children, ranging from one and a half to fourteen years of age, 81 cases gave a positive result.
3. In 115 cases that were fevers other than typhoid, the positive reaction was never obtained.
4. The reaction did not occur later in children than in adults, as is claimed by some writers, but, on the other hand, somewhat earlier. However, we should not lay too much stress on this point.
5. The Widal test is of greater importance in children than in adults, owing to the frequent atypical character of the disease in the former, and the greater frequency of cases resembling pneumonia and meningitis.
6. As pointed out by Morse, the reaction will be of service in establishing the frequency of typhoid fever in children.

HERPES OF THE SCALP.

PHILIP F. BARBOUR exhibited this boy, aged about 8 years, chiefly for the reason that he was suffering from herpes in rather a curious location. He has a typical herpes of the scalp.

The history is that he was standing on the shoulders of another boy trying to climb an iron support to an awning; the other boy jumped out from under him or let him down, and he scraped the side of his neck on the iron post. He developed shortly after that a herpes of the scalp in the region of the distribution of the branches of the second cervical nerve.

I brought the boy here, as I believe this is a rather rare location for herpes. He has been perfectly well otherwise.

Dr. Carl Weidner.—The location, as Dr. Barbour has stated, is unusual. I think there is no question about the correctness of the diagnosis; the case is typical. The cause of the trouble may be trauma, though we recognize herpes zoster as a nerve affection practically. The most common site of herpes, as we know, is along the course of the intercostal nerves. One of the most protracted cases I ever saw and one which I did not recognize at the time was a case of herpes of the eyelid and temporal region; Dr. Pfingst reported the case before one of the Louisville societies. The patient had tremendous neuralgic pains over the supraorbital and temporal regions, then an eruption appeared on the face, on the eyelid and underneath the eye. There were some peculiar little patches on the mucous membrane of the eye; these patches were of a light yellowish color with yellow centers. On account of the rare location for herpes the nature of the trouble escaped recognition until the patient had been under observation for quite a while. (Proceedings of the Louisville Clinical Society.)

PEDIATRICS

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EDITORIAL COMMENTS

The Real Significance of the Enlarged Epitrochlear Gland

It is probably not far from the truth that more than two thirds of the present generation of active physicians were taught to attach a special and pathognomonic meaning to enlargement of the epitrochlear lymph follicles. There are few undergraduate lecture rooms where, some time in the course, the professor has not announced that enlarged epitrochlears are exclusively associated with syphilis,—meaning, i.e., not that syphilis always affects these follicles, but that if the follicles are affected syphilis is the cause.

There is not much doubt that the statement is erroneous. Careful observations for more than a year past in one of the largest dispensaries in this city have been made by the writer of this notice. Males and females of all ages were included. Between 1200 and 1600 consecutive cases were examined. The results were surprising. In about 60 or 65 per cent. of the cases both glands were more or less enlarged. In about 10 per cent. more one gland only was enlarged,—thus leaving about 25 per cent. only in whom glands could not be felt on either side. In all the positive cases the history and physical

signs of syphilis were carefully sought for elsewhere, but not a tithe of them could be supposed on any reasonable ground to have suffered from either hereditary or acquired *lues*. Moreover, this particular dispensary is located in one of the foreign quarters of the city where syphilis is comparatively and surprisingly rare.

The cause is certainly in many cases non-specific. A certain number, particularly of the unilateral type, are of course due to bacterial infection of the forearm, hand or elbow. In palmar eczema, psoriasis of the forearm or elbow, furunculosis, septic infection of the nails and fingers,—such lymphatic swellings are common enough to be surprising by their absence. In the two varieties of leukemia not only one but the whole chain of epitrochlear glands may be swollen. The same may be true, though opportunities of observation are of course more rare, in pseudoleukemia or Hodgkin's disease. A large portion of the remainder are attributable to scrofula, and if to this we add the very common "lymphadenitis simplex" of the tenements (an affection which is so far obscure in its etiology but is certainly not specific) we have probably explained a large number of the non-specific cases.

The opinion would seem to be justified that the special connection of syphilis with epitrochlear lymph nodes is a "fallacy of observation." B.

ORIGINAL ARTICLES

BOTTLE-FED BABIES.*

By Wm. Z. Holliday, M.D.,
Augusta, Ga.

ONE of the evidences of our progress as a nation is the increasing importance that is being attached to the care of man in his state of greatest helplessness. The most casual reader, whether he be layman or physician, cannot fail to be deeply impressed by a glance at the vital statistics of early life. Coming into this world and facing the odds there are against us is indeed a serious undertaking, especially when we remember that so many must succumb before reaching the first mile-post on the journey. Our prospects of continuing in the race of life are not much brightened until we are past the age of five. In his excellent text-book on diseases of children, Holt says: "Three important factors are to be taken into consideration when an infant is to be reared, namely, heredity, environment and food." I would not deal lightly with either of these essentials, but I presume few of you will take issue with the statement that to us as medical men the question of how best to feed the baby overshadows the rest. If by virtue of heredity, habit and inclination our mothers attained that degree of physical perfection intended by an all-wise creator, then the time I will consume would be better devoted to something else.

Under such circumstances there would be a natural and suitable supply at nature's fountain, the natural, the only ideal food for babies. It is a fact, however, that there is a growing disinclination on the part of mothers (be it said to their shame) to nurse their own offspring. It is equally true that there is an increasing disability to discharge this duty, even when they are willing to do so.

Prof. J. Lewis Smith, writing in 1891, says: "One-tenth of all the children born die during the first month." Since then there is so much danger of loss of life, and more especially since such a large percentage of deaths during this period

* Read before the Medical Association of Georgia, 1901.

are due to errors of diet and consequent disease, we are brought face to face with the question of errors in infant feeding as the cause of the alarming mortality of this period of life. It is only during the past decade or two that the subject of infant feeding has assumed proportions at all adequate to its importance. It is now almost universally conceded that the science of feeding is the *very foundation* of pediatrics. By the term bottle-fed babies we mean that important class of unfortunate little individuals who are deprived of the natural supply either wholly or in part. If a mother is in reasonably good health and can supply even a small part of the nutriment her child requires she should supply just that much. If on this her child does not grow or thrive then it must be supplemented.

Some Causes for Artificial Feeding.

1. The death of the mother at or about the time of the the child's birth.

2. A total or partial failure of the mammary secretion.

3. The existence of constitutional debility or hereditary diseases—especially syphilis or tuberculosis.

When artificial feeding is to begin we should look about us and see with what we have to deal. In order to help us estimate the young hopeful properly we must estimate his avoirdupois—weigh the baby. Since this is the period of greatest activity in physical development there is no other means by which we can accurately determine whether or not there is a proper growth. Weighing should not only be done carefully but regularly, at least once a week, and a careful record made for future reference. A strong, well child should gain in weight from 4 ounces to 1½ pounds per week.

How shall we begin the process of artificial feeding? The answer is easy—study nature and imitate her as closely as possible.

When we look at mother's milk we find that we have an opaque fluid having a slightly alkaline reaction, a specific gravity varying from 1028 to 1033; that it is composed of thirteen parts of solids and eighty-seven parts of water. A further analysis will show that the solids are made up of—

Fat	4
Carbohydrates	7
Proteids	1.50
Salts	20
Water	87.30

We must study each of these constituents in order to determine its importance in the combination. The fats encourage the growth of the bones, nerves, furnish animal heat and are also devoted to storing up fats in the body. The carbohydrates have two important functions—the production of animal heat and fat. The proteids stimulate the development of the tissues generally, the cells of the body, the blood, muscles and organs of the body. The function of the salts is to stimulate the growth of bone. A great many attempts have been made by chemists to establish a fixed formula for normal mother's milk; the result has been to prove that there is no such thing. Not only does the milk of different mothers vary very much, but also the milk of the same mother has been shown to vary several times during the course of a single day. The formula which I have just given is one that is pretty generally accepted as a fair average of a good sample of mother's milk. Having learned the value of each of the constituents—the fats, the carbohydrates and proteids, more especially, we also learn that the proteids (containing the casein), existing in the smallest per cent. of the three, are the most important, because it is from these that the greatest volume of the body and that which must perform its most active functions are made up.

Until a few years ago there was only one individual that had made any special effort toward anything except empiricism in the copying of mother's milk as a guide to success in the artificial feeding of infants. I allude to the efforts of the senior Dr. Meigs, of Philadelphia. He ascertained that a mixture of cow's milk with cream and sugar, diluted with limewater, made an excellent substitute for mother's milk. This mixture, under the name of "Meig's Cream Mixture," attained great popularity and was known far and wide as the most successful that had been devised up to that time.

It was a good many years later that his son, employing the same mixture in his own practice, discovered by a chemical analysis, that its composition was almost identical with that of mother's milk. It was some years later before Professor Rotch, of Harvard University, working with the cooperation of some public-spirited and wealthy gentlemen of Boston, established what was known as the Walker-Gordon laboratory. The object of the laboratory was to break up and recompose cow's milk so as to make it conform to the formula of mother's milk and it has since been the basis of all scientific modification of infant foods from cow's milk.

There are very many reasons why cow's milk should be adopted as the artificial food for bottle-fed babies; not because it is more nearly like mother's milk than that of some other animals, but because of the fact that it can be had more conveniently at less expense and everywhere. Since then we have determined to modify cow's milk, the question naturally arises as to whether any particular species of cow should be employed for this purpose. Experience has taught that some cows, the Jerseys more particularly, furnish a milk so rich in fats that it is difficult to manipulate so as to make it easily assimilable. There are, however, some other considerations that are extremely important; the first of these is the healthfulness of the cow and the uniformity and cleanliness of the milk as it is furnished to us. It is a fact well known that cows are subject to tuberculosis and to some other diseases that are communicable through the milk. Of course, the milk from such animals is highly objectionable and should not be employed under any circumstances. The milk should be of as uniform quality as it is possible to obtain. It was formerly thought that this object was best attained by employing the milk of a single cow; it is now a well known fact, however, that cow's milk, like mother's milk, is subject to frequent and wide variations and that the best means to employ for the procuring of a uniform sample is not to employ that from one but rather from many cows. You will readily understand that this is true if you bear in mind the fact that the indisposition of a single cow, which would affect the quality of her milk, would not be nearly so liable to affect unpleasantly the baby's nutrition if it were diluted by the addition of good milk from a dozen or more perfectly healthy cows. Since these changes are constantly going on in all herds of cattle, it is decidedly preferable to employ the milk obtained from a dairy to using that which would be gotten from the cow owned by the family.

After its introduction the method employed by Professor Rotch soon gained wide popularity, and our medical journals were constantly filled with reports of the use of this method in all parts of the country. In quite a number of our large cities Walker-Gordon laboratories were soon established, and it became as popular and as common to write prescriptions for modified milk from these laboratories as it was to write prescriptions for medicines to be compounded by the pharma-

cists. The teachers in our medical centers taught that it was important that we should learn to think and write in percentages as fluently as we were supposed to write the characters of an apothecary's table. In these cities where the laboratories have been established the supply of milk was furnished by dairies some distance away. Their methods of handling milk were to exercise as great care as they could and to send it out not only in a modified condition but as nearly sterile as it was possible to have it.

I will not consume your time by a repetition of the prescriptions that have been regarded as suitable for children of different ages and conditions. I desire, however, to make at this point, comparisons between the milk of cows and that of mothers in order that we may understand what modification is necessary in order to make the substitute approximate that which we are endeavoring to copy.

Woman's Milk.		*Cows' Milk.*	
Fat	4	Fat	3.50
Sugar	7	Sugar	4.30
Proteids	1.50	Proteids	4
Salts	0.20	Salts	0.70
Water	87.30	Water	87.50

Of these constituents there are only three that will attract any particular attention on our part in the process of modification, because the water exists in practically the same proportion in each, and the salts in cow's milk being three times the volume of those in mother's milk, when the other constituents have been properly modified, will be found to exist in about the correct proportion. Cow's milk contains nearly three times as much of the proteids and a little more than half as much of sugar; not only is it true that the proteids exist in larger proportion in cow's milk but they are also more difficult to manage. The reason of this is that they are not acted upon so readily by the rennet found in the baby's stomach; consequently they tend to form curds which are not so flocculent and easily assimilated as those produced by the action of the same constituent of mother's milk. It is also true that for the same reason the baby's stomach is capable of taking care of a smaller volume.

Therefore, in the beginning, it is well in your attempt to copy nature to add a smaller percentage of proteids. Not many

infants are capable of digesting at first more than 1 per cent. of proteids of cow's milk, and in case this is found to disagree even a smaller percentage must be given until the system has become accustomed to the digestion when the volume may be increased to the normal amount. So much difficulty has been experienced in the manipulation of the proteids of milk that efforts have been made to substitute therefor proteids of vegetable origin. This effort has not been satisfactory, for while it is found that the child may do well for a short time on vegetable proteids, it is not long before it is discovered that they do not thrive and a return must be made to those of cow's milk.

The sugar found in mother's milk is lactose and exists in larger proportions than we find cow's milk; therefore this deficiency must be supplemented. It is usually considered better in substitute feeding to employ milk sugar for the purpose of increasing the volume of the carbohydrates. This, however, is not absolutely essential, for very many physicians have regularly employed cane sugar and found that the results were entirely satisfactory. Let us remember that the object of the addition of sugar to cow's milk is not simply to sweeten but to furnish one of the important constituents in that proportion which nature intended that the baby should have it. Thus far I have said nothing of the functions of the fat and the proper method of its manipulation. The fat of cow's milk exist in less volume than in mother's milk; therefore the volume must be increased. Nature has intended that the fat should exist not only in that proportion which is essential for performing its functions in the part of nutrition, but evidently intended that it should also perform the function of a lubricant because of the fact that in well children a certain percentage is constantly passed unchanged in the stools. It is also true that a deficiency of fat in the infant's food is one of the most fruitful causes of constipation.

Having briefly reviewed the process of analysis and recomposition of cow's milk as modified in the laboratory what shall we next do to ascertain whether this milk, which is sent forth in a state of physical perfection, is accomplishing its mission? I told you in the beginning it was important that the baby should be weighed. If your baby is thriving upon its diet, he is increasing in weight, is good-natured and shows general signs of physical thrift. On the other hand, if there is no satisfactory increase in weight, if the baby is fretful,

sleepless, emaciated, pale, crying a great deal, you may be sure that something is wrong. Again if there are frequent paroxysms of colic, diarrhea, frequent crying spells, you have still other symptoms demanding a change.

Laboratory methods teach us, among many important lessons, this analytical plan of breaking up into composite elements and building up again. It is certainly a step in the right direction, and when we have employed it, if the results are not those we sought we will do well to investigate our technique to determine whether or not we have done our work well. We must produce a substitute as the chemist does in the laboratory, furnishing all the elements combined in their right proportions; else we fail to build up a strong, perfect baby. After so much handling of the milk we have modified it is hardly expected that it will be sterile therefore it is customary to sterilize or pasteurize it, not because this adds anything, but because it prevents the microorganisms with which the milk is teeming, from doing hurt. Milk is, as usually handled, a great culture medium for bacteria, most of which are not hurtful, but some of them are, and it is not uncommon to convey typhoid fever, diphtheria and some other diseases in this way.

Most bacteria, including those just mentioned, are destroyed by a temperature of 167° F. for fifteen to thirty minutes. The writer believes that milk should not require sterilizing because the process is hurtful to its properties as a nutrient; however, while present methods are in vogue we will have to adopt it as the lesser of two evils.

Laboratory methods are convenient, scientific and all that, but since these institutions are not accessible to the vast majority of the profession, what are we, who are deprived of its benefits, to do? We can adopt the plan of Meigs and modify the milk at home. It is my opinion that if we can combine the teachings of Meigs and the laboratory we have a practical, almost an ideal, method of modifying milk. There are several of our best men, including Jacobi, Chapin and others, that have never accepted the idea that strict adherence to percentage feeding is essential, but have chosen rather to accept the laboratory teachings as a pointer to the path the general direction of which we should follow.

I assert most emphatically that cow's milk can be suitably modified at home and that the process is very simple. We

have, as we have already learned, only three of the constituents of milk to deal with; and only one of these likely to be troublesome, namely, the proteids. These require dilution, the sugar and cream to be increased, the milk to be rendered alkaline and kept sterile. I use the words *kept sterile* advisedly for it is unquestionably true that there is no more reason why the secretions from the mammary glands of the cow should be teeming with bacteria than that the same should be true of mother's milk. When we have learned to properly prepare ourselves and the cow for the operation of milking and when the operation itself has been performed under as strict asepsis as is employed in a surgical operation, then and then only will we be able to dispense with the hurtful process of cooking the baby's milk. When we have procured clean milk the process of home modification will be even simpler than it is at the present time. It will consist of nothing more than the breaking up and recomposing the cow's milk in a humanized form so as to make it meet the requirements of the baby's constitution.

For some years past I have employed the plan of diluting the top milk from the cans furnished us by the dairymen, adding sugar, limewater, etc., and pasteurizing, very satisfactorily. It is easy to carry out this method with little or no machinery at all. In a great many cases I have required the mother or nurse, after preparing the milk according to a written prescription, to introduce the same into a simple double boiler and heat to a temperature of 167° for twenty minutes. This method I find is open to one single objection, namely, that the milk must again be handled in order to get it in the feeding bottle; therefore, I consider it a better plan after having the milk modified to introduce it into some simple form of sterilizer where it shall remain until consumed. It does not make a great amount of difference whose sterilizer you employ; it is a good idea to learn to use one well and stick to that. I have found the one devised by Seibert, of New York, to possess some points of merit not found in others. This is shown by the pains he has taken to work out and record upon the bottles, according to the laboratory methods, almost all the information that is necessary for the successful operation of the appliance. I have brought with me one of the bottles from this sterilizer; I call your attention to the fact that it has this line indicating the point to which it is necessary that the top

milk, already referred to, should come; then dilute with your solution of milk sugar, limewater, or whatever else it may be necessary to employ; you will observe that the process is so simple that any person of ordinary intelligence must operate it successfully. In fact it is so nearly perfect in its general arrangement that I have seen fit to denominate it the "Stem-winder Sterilizer."

At St. Petersburg careful studies were made some years ago to determine the proper quantity of food required for the feeding of infants of different ages. The results proved that the *weight* and not the age of the child determined its gastric capacity. This, roughly speaking, was found to be one-hundredth (1-100) of the initial weight, to be increased 1 gram for each day's increase in age.

Frequency of Feeding.

Very young babies should be fed regularly every two hours from 5 a.m. to 9 p.m., and not more than once or twice after the last named hour. After two months the intervals should be increased to two and a half hours; at four months, to three hours, and so on, till by the end of the first year not more than six feedings are necessary. It is important that nursing habits should be established very early. Mothers very frequently object to waking the baby to be fed. It is important to insist that this shall be done, because the baby's stomach has a very limited capacity and requires just so much time for the digestion of its milk. With a little pains taken at the beginning it is only a short time before nursing habits are established and the baby will not only learn to wake up at the right time, but, having its meal, will return to its slumbers with very little interruption.

I have told you that cow's milk could, and should be, procured in a condition more nearly fit for infant feeding by virtue of its purity than we have been able to get it in the past. I have been watching with keen interest little intimations that have been made along this line for some months past. In Chicago a plan has been adopted under the direction of the Trinity Diet Kitchen for Infants for procuring milk, reports from which seem to indicate that its purposes will be accomplished. I quote from an article by Dr. George Thomas Palmer, in the *Philadelphia Medical Examiner:* "Trinity Diet Kitchen for Infants, a milk charity in the poor district of

Chicago, was opened with the idea of supplying a pure, modified cow's milk to be distributed without any attempt at sterilization. During the past summer we have carried out this plan, and although the infant mortality in the city has been very high and the weather intensely hot (one month of the hottest weather ever recorded by the Weather Bureau) we have had a mortality of something less than 1 per cent. We have never given out 1 ounce of either sterilized or pasteurized milk and we have been so gratified with our results that we have no disposition to do so.

"It may be further stated that we have had almost no complaint of the milk souring, although our clientele has been the poor and their hygienic surroundings exceedingly bad. We have merely taken the precaution to have everything coming in contact with the milk perfectly sterile, and of packing each supply with a liberal quantity of ice before permitting it to go out. The amount of ice given to each child has been ample to keep the food cold and sweet for the greater part of the day and instructions are invariably given that the ice be replenished when it runs low. Our success in feeding with raw milk in unsanitary surroundings I believe to be due, first, to the unvarying purity of the milk; second, to the care given the milk in our kitchen. The rigid instructions given the parents in regard to handling the milk, regularity of feeding and absolute cleanliness has also been a factor. The milking is done at three in the morning and at three in the afternoon, in stables with cement floors, so slanted as to permit thorough scrubbing, which is done daily. The milkers are clothed in white, clean suits, and use buckets which are covered with a cap holding in place two thicknesses of sterilized gauze between which is placed a thick layer of absorbent cotton. The milk passes through this gauze and cotton before reaching the pail. The udder washers precede the milkers and thoroughly cleanse the udders. The milker then draws a considerable amount of milk from each quarter and puts it in a pail for disposal. He then milks through a strainer; when his bucket is full, empties the milk into a sterile can, in which process it is again strained. These cans are taken up and reach the dairy within five minutes after milking."

The milk thus procured is subjected to the usual laboratory methods of modification before it is sent out.

In conclusion, I wish to report two or three cases of babies

fed on home modified milk to illustrate the methods employed in my practice:

No. 1.—L. S., aged 6 weeks, mother died of tuberculosis at birth; baby came to me from its home in North Carolina, accompanied by the wet-nurse who had cared for it since the death of the mother. Nurse is strong and healthy; has splendid baby of her own which is cared for largely by artificial milk; still, the orphan baby does not thrive. After watching her some time it was discovered that the nurse's habits were bad, especially in that she was addicted to drink. Under these circumstances the nurse was discharged and dependence was placed upon modified cow's milk instead. After about two weeks the baby began to improve, grew rapidly from the end of the second to the sixth month. At this time there was a mild gastroenteritis; this lasted two weeks, after which the baby was well again and continued to take the modified milk till weaned. At period of weaning she was an uncommonly strong and well developed little girl.

No. 2.—S.X., son of good, strong mother; not very strong at birth. Soon got all right and did well until third month. At this time, the mother growing very stout, is failing in quantity and quality of milk. Baby put on cow's milk modified at home and sterilized in a simple boiler; baby increased rapidly in weight, doing well from the first; so well did this baby thrive on its food that it was not necessary to visit him professionally from the fourth to the tenth month; at this time there was a slight indisposition which was easily corrected by a little modification in the milk, after which the baby had no more trouble during the nursing period.

No. 3.—T. H., aged 5 months; mother is a pale, anemic woman, furnishing a small supply of poor milk upon which the baby fed for the first two months. At this time another physician who prescribed for the baby put it on some form of shop food which it continued to take for two months. On this the baby did not thrive. I first saw this child at five months; baby pale, flabby, the process of athrepsia being already established. Baby put on cow's milk suitably modified at home and sterilized in a Seibert sterilizer; baby began to increase in weight and to grow strong from the beginning. This continued from the fifth to the eleventh month. At this time, it

being very hot in the city, baby went with its mother on a visit in the country. At the earnest solicitation of the relatives baby was given solid food. In a week's time baby returned to the city with acute gastroenteritis, which lasted for more than two months, making it necessary to resort to wet-nursing and to return to just such methods as would have been employed had this child been only two months old. Baby went through very slow and tedious convalescence after which the former vigor was regained. The baby is now a year and a half old, has been weaned and seems in most excellent condition for the approaching second summer.

COURVOISIER'S LAW.

Dr. Richard C. Cabot, of Boston, says that this law was formulated by Courvoisier in 1900, but it was not generally known to the profession. He analyzed a large series of cases, and concluded that, when the common bile duct is obstructed by stone the gall bladder does not enlarge, whereas when obstructed from other causes, enlargement is generally present. The author had examined the histories of 86 cases of gall-stone-obstruction occurring at the Massachusetts General Hospital. Of this number, 57 had been due to obstruction by gall-stones; in only two cases was the gall-bladder enlarged. In 29 cases was the obstruction due to other causes than stone, and in only two of these was there no enlargement. The explanation offered of this seemingly anomalous fact was that when there was a stone in the common duct there were generally also one or more stones in the bladder itself and the irritation caused by these stones resulted in inflammation of the bladder and consequently in contraction of the bladder. This law, the author says, was of great value in separating operative from non-operative cases of chronic jaundice with or without enlargement of the gall-bladder.—*Med. Record.*

INVOLUNTARY MICTURITION IN CHILDREN.

By G. Frank Lydston, M.D.,
Chicago, Ill.

INVOLUNTARY micturition in children, especially the nocturnal form, is by no means so simple an entity as some would have us believe. The term enuresis is often made to include a variety of conditions which are alike in only one respect, namely, the occurrence with greater or less frequency of involuntary micturition. Conditions of irritation identical with those producing similar symptoms in the adult are very often classed in children as enuresis. This diagnostic fallacy is often responsible for serious neglect or more or less profound pathologic disturbance of the genito-urinary tract in children.

Enuresis should properly include only those cases of involuntary micturition in which the condition is purely a symptomatic one, there being no local disease of the urinary apparatus to account for it. This variety of involuntary micturition in children is divided by Ultzmann into enuresis diurna, enuresis nocturna and enuresis continua, the latter term implying the form in which involuntary micturition occurs both day and night.

Etiology of Involuntary Micturition in Children.

Involuntary micturition from sources of direct irritation in children usually alternates with frequent voluntary micturition. Conditions, however, which in the adult would give rise to frequent *voluntary* micturition may give rise to frequent escape of urine in children, which is so obviously *involuntary* that a mistake in diagnosis may readily occur. Among the sources of direct irritation producing involuntary micturition in children may be mentioned pyelitis, renal tumors, renal calculus, hyperacidity of the urine incidental to lithemia, phosphaturia, which is usually associated with general debility and malnutrition, vesical tumor, or calculus. Reflex irritation producing involuntary micturition is most likely to consist of preputial abnormalities or contraction of the meatus.

Enuresis is unquestionably a neurosis. I do not agree with Ultzmann, however, in the view that it is always a motor neurosis, believing that it may be either motor or sensory. The condition may be due to a hyperesthesia of the senrosy nerves and apparatus of the vesical neck, or to an inhibition of contractile power, or even a paralysis of the vesical sphincter, i.e., the membranous urethra or true vesical neck. The latter condition, however, is the more frequent of the two. The various conditions of debility and malnutrition, such as scrofulosis, rickets and anemia, unquestionably bear a certain relation to enuresis. Children in whom the motor mechanism in general is well developed and the tonicity of the nervous system unimpaired, are least likely to suffer with this disease. It must be remembered, however, that in many instances children who are otherwise very healthy are affected by it. Here a local disturbance of muscular tone, or some reflex or direct cause of urinary excitation may account for the enuresis.

In my experience I have found that in well-nourished and robust children affected by enuresis local causes of irritation are more likelyto exist than in children of inferior physique.

The precise conditions which give rise to true enuresis are rather difficult to determine, as might be inferred from the variety of opinions which have been expressed upon this subject. Trousseau, Bretonneau and Desault have been inclined to attribute enuresis, not to general debility, but what they rather vaguely term abnormal relations of the bladder and its neck. Desault asserts that sudden violent contractions of the vesical detrusors which would awaken the adult fail to awaken children from the sound sleep which is their lawful and fortunate heritage. As Ultzmann says, however, this explanation would hold good rather in cases in which involuntary micturition is due to cystitis, pyelitis or stone.

Gursant advances the hypothesis that there exists a congenital weakness of the sphincter. This may apply to some cases but certainly is not true of all, for a single application of the faradic current or a half-dozen spinal injections of strychnia often serve to cure enuresis, which certainly would not be the case if the disease were due to a congenital muscular weakness.

Some authors assert that enuresis always is due to hyperesthesia of the vesical fundus or of the vesical mucosa in general, which entails urinary outflow as soon as the bladder has

been distended to a certain degree, the extra activity of the renal functions in children completing the chain of explanations. This theory probably holds good in a certain proportion of cases.

Lebert, the most fantastic theorist of all, believes that during sleep there is a certain degree of narcosis of the sphincter in the affected children.

Ultzmann's idea is that enuresis is a neurosis, characterized by a disproportion between the innervation of the detrusors and that of the sphincter, the sphincter especially being very imperfectly innervated. He claims that this condition is normal from the expiration of the first year to the completion of dentition, enuresis representing merely the continuance of the infantile condition. He says; "That enuresis consists only in an imperfect innervation of the sphincter of the bladder is shown by the results which are attained by electrical treatment. There are cases, namely, which are already cured after the first faradization of the sphincter and remain so henceforth. Such a therapeutic result can only be explained by imperfect innervation and never by imperfect development of the sphincter." Enuresis may be a vesical manifestation of chorea.

It would be difficult to give a terse and lucid explanation of the purely neurotic form of urinary incontinence in children. That it is due to a disturbance of the equilibrium of the urinary mechanism would seem to be evident enough, but precisely in what this disturbance of equilibrium consists in any given case may be difficult to determine.

Enuresis most frequently occurs between the ages of three and ten or eleven years, although it is a matter of common experience that it often occurs well past puberty. It is claimed by Ultzmann to be found indifferently in either sex. I am inclined to agree, however, with those holding that it occurs more frequently in the male, in whom sources of reflex irritation are more often found. In all cases of enuresis, either male or female, sources of reflex irritation must receive serious consideration, abnormal preputial conditions in the male being sought for with especial care.

Diagnosis.—In all cases of involuntary micturition in children great care should be taken, first, to differentiate the cases in which a pure neurosis exists from those characterized

by pathologic conditions of various kinds producing local irritation. Where the condition is shown to be a pure neurosis, possible sources of reflex irritation should be carefully sought for. Success in treatment depends altogether upon the care exhibited in the differentiation of cases. Simple enuresis should never be taken for granted. The urinary organs should be carefully explored. Stone, especially, should be carefully sought for. The rectum should be examined with reference to possible sources of reflex irritation of the urinary organs, and with special reference to the existence of hemorrhoids and ascarides recti. The urine should be carefully examined as to its possible properties of irritation. Phosphaturia, oxaluria, lithuria, diabetes mellitus or diabetes insipidus may explain the trouble. The general condition should be taken into careful consideration and the source of urinary irritation and malnutrition determined if possible. Digestive disturbances will often be found, the correction of which will cure the enuresis completely. In one obstinate case coming under the observation of the author, the condition was found to be due to a well marked phosphatic diathesis, as shown by constant phosphaturia and a chalky degeneration of the teeth.

Treatment.—As suggested above, one of the first duties of the physician is to correct any condition of malassimilation or debility which may exist. Sources of local irritation having been excluded, the condition should be treated as a pure neurosis. One of the best remedies at our command is the daily injection of full doses of sulphate of strychnia in the lumbar region.

In cases of involuntary micturition dependent upon chorea the usual measures for the correction of that condition should be adopted;—cold bathing, massage, cod-liver oil, arsenic and antispasmodics come into play here. Such remedies as the bromides, valerian, assafetida and camphor are of special service. A remedy which has proved of special service in the forms of enuresis due to hyperesthesia of the vesical neck, is tincture of cantharides in minute doses. Where hyperacidity of urine exists this may be combined with acetate or citrate of potassium or lithium. The lithium salts are of special value where there is gouty or rheumatic diathesis. The salicylates also come into play here. Such tonics as the mineral acids, quinine and iron, with a liberal dietary of fat, and perhaps the

administration of cod-liver oil are demanded in many cases in which malnutrition is a prominent factor. Ergot is very often useful. A very valuable remedy in purely neurotic cases and especially in those accompanying chorea, is santonin in full doses, this independently of the existence of intestinal worms. Where those exist this remedy is of course a *sine qua non*. In cases of phosphaturia a diet of proteids with the administration of mineral acids has a much more limited range of value than authorities on therapeutics seem to believe. Like many other remedies this has been handed down year after year by various authorities on therapeutics, since Trosseau and Bretonneau, until it is considered by the majority of practitioners little short of specific. So far as my experience goes, and it has been by no means limited, the value of this remedy has been greatly overrated. While it does act favorably, it is in many cases of only temporary benefit.

Where the involuntary micturition is due to the irritation of saccharine urine, as in diabetes mellitus or the rapid entrance of urine of low specific gravity into the bladder, as in diabetes insipidus, the primary condition demands correction. The author takes the liberty of mentioning here an observation which he has made, to the effect that urine of extremely low specific gravity and consequent non-irritating character is often not so well tolerated by the bladder as is a more concentrated and consequently more irritating urine. The reason for this seems to be the fact that in cases of diabetes insipidus and allied conditions the urine is secreted so rapidly that the bladder does not have time to accommodate itself to its contents. The urine trickles into the viscus so fast that it is, so to speak, taken by surprise, and is consequently stimulated to contract. I have noticed this phenomenon very frequently in patients whose urine was extremely diluted in consequence of the ingestion of large quantities of pure water, yet frequent and scanty urination was produced.

In by far the majority of instances local treatment is required, and its neglect is the explanation of frequent failures in the management of this condition. The necessity for local treatment in cases of involuntary micturition due to an irritated condition of the genito-urinary tract is obvious; thus, an operation for stone, the application of silver to the vesical neck, or surgical intervention for the relief of diseased kidneys may be necessary.

The urethral sound is one of the most valuable measures for the treatment of a large proportion of cases of involuntary micturition in children. It acts in three ways. First, by blunting the sensibility of the nervous supply of the vesical neck, thus correcting hyperesthesia. Secondly, by decongesting the mucous membrane of the deep urethra, i.e., the vesical neck. Thirdly, in cases of a purely neurotic type it stimulates the relaxed sphincter vesicæ to contract and, so to speak, exercises it. The resentment which the muscle offers to the entrance of the sound produces a stimulation of nutrition of the muscle, increases its bulk and adds to its tonicity, thus enabling it to resist with more success the egress of urine. Many otherwise obstinate cases are cured very readily by systematic sounding. All sources of reflex irritation should be relieved; the prepuce, if phimosed and redundant, removed, and all adhesions separated. The meatus, if narrow, should be cut. Carunculæ of the urethra and preputio-clitoridal adhesions may demand attention in female children.

Next to the sound, the most efficacious method of treatment in the purely neurotic cases is the injection of strychnia beside the spinal column in the lumbar region. The dosage is of course to be in proportion to the age of the child, but as a single daily dose is given a larger quantity can be administered than where it is given internally three times daily. The injection should be made deeply into the substance of the erector spinæ muscle and as close to the spinal column as possible. In several instances in the author's experience a cure has resulted from a short course of these injections. In one instance, the case of a girl twelve years of age, the daughter of a physician, cure resulted from the succession of three injections in the lumbar spine of 1-15 of a grain of sulphate of strychnia.

Where vesical catarrh is a factor in the cases, and especially in cases where the urine is alkaline or neutral, urotropin is often of value in connection with the usual local measures for the correction of the condition.

TREATMENT OF A CASE OF PERTUSSIS WITH CEREBRAL ENGORGEMENT.

By J. F. Rinehart, M.D.,
Former Member Kentucky State Medical Society; Member Alameda County Medical Association, Oakland, Cal.

Case.—G. P., aged 5½ years, had been going through an ordinary attack of pertussis for about four weeks when I was called in to see him on account of an intercurrent attack of bronchitis. When I first saw him he had a temperature of 104°, a pulse 120, a respiration of 40, with coarse and fine moist rales over each lung. In addition to this his cough had become very much more severe with the development of the bronchitis, so that the paroxysms would last over a minute, suffocation appearing to be imminent with each spasm of cough.

On account of these prolonged spasmodic attacks there had developed a set of symptoms referable to the brain itself, viz., drowsiness, inability to fix the attention upon a subject when aroused, irregular muscular twitchings and sharp neuralgic pains affecting at first one part of the body and then another.

The real condition of the brain in this case was what I have often noticed in pertussis where the spasmodic attacks are unusually frequent and unduly prolonged, and also in cases of infantile convulsions which have been often repeated or in which the seizure has lasted beyond three or four minutes, viz. one of swelling or beginning edema. It is much the same condition as would be found in the hand if the wrist should be tightly bound with a cord for a sufficient length of time to cause the hand to swell. There would be at first a very intense venous engorgement, and then an extravasation of serum into the connective tissue causing true edema.

The symptoms above mentioned occur where there is a simple swelling of the brain from venous engorgement; later on when a true edema has occurred there appear convulsive movements and tonic contractions of certain sets of muscles with paralysis of certain other sets, according to the location of the edematous area, and later still such symptoms as occur

from general brain pressure, viz., coma, general paralysis and death.

The treatment of such a case as this presents some difficulties. To allow the severe paroxysms of cough to continue would be to allow the brain to become edematous; to check the cough entirely would not be without danger of allowing the bronchitis to spread to the smallest tubes, causing the dangerous condition of capillary bronchitis.

My experience with these cases has taught me that in such a condition as has just been described there is much greater danger from the brain than from the lungs and that our most energetic measures should be directed to the relief of those symptoms referable to the former, relying more upon local applications and derivative measures for the relief of those of the latter.

The patient was accordingly given a mixture, of which I shall speak a little later, for the control of the cough, was also given small doses of calomel repeated often until active purgation ensued, and was clad in a cotton jacket covered with oil-silk, having had turpentine and lard applied freely to the chest first as a counterirritant.

To try to relieve a swollen brain, such as I have described above, with remedies directed to the relief of cerebral congestion, such as ergot and the bromides, would be entirely useless. There is but one rational method of procedure, and that is, first, to remove the cause, i.e., the prolonged forcing of blood into the brain caused by the cough, and, second, to use derivatives to cause the absorption of whatever serum may have been already forced through the vessel walls and into the brain substance.

The first is accomplished best by the following prescription. In giving this I am aware of the great number of remedies recommended for the control of the spasmodic stage of pertussis. I have tried most of them and have found the following prescription to be of the greatest service in the greatest number of cases:

℞ Tr. stramonii sem. . . . . 2 drams
Ammonii bromidi . . . . . 2 drams
Elixir simplicis, q.s. ad . . . . . 2 ounces

M.—S.—Teaspoonful in a little water every two or four

hours, as may be needed to quiet the cough. This is the strength ordinarily required for a child of five years.

On the morning following the cough was controlled and the cerebral symptoms as a consequence were greatly relieved.

The treatment after this consisted in the administration of the above mixture often enough to keep the cough within bounds, and of 2½ grain doses of carbonate of ammonia every three or four hours as an expectorant, together with milk and whiskey at short intervals. The recovery of the patient was prompt.

Injections of Crude Petroleum to Relieve Fecal Impaction.

Dr. W. M. Robertson, of Warren, Pa., in a communication to the editor of this department, calls attention to the fact that "it is not at all infrequent to find that high injections of water, olive oil, or any other of the liquid injections commonly used for overcoming obstruction of the bowel are of little use, and various directions are given for overcoming the trouble. As a rule, the trouble is simply due to the inability of the fluid used to penetrate the hardened and almost water-and-oil-proof fecal mass, so that it may become movable. Physicians of the "oil regions" have found out by experience that the common crude oil as it comes from the wells is the best solvent known for the disintegration of these masses. There is no fecal mass which it will not penetrate and soften. One quart of the oil should be introduced through a colon tube and allowed to remain for twelve hours. There is usually no trouble about its retention. This treatment has been found to succeed after the most energetic use of water and sweet oil and glycerin failed to give relief. The crude oil has also been used internally, and there seems to be no reason why it should not be given by the mouth in conjunction with the rectal injections for obstipation. In that case it should be given with castor oil."—*American Medicine.*

SOCIETY REPORTS

PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting November 12, 1901.

The President, Dr. Thompson S. Westcott, in the chair.

Dr. James K. Young exhibited a patient on whom he had done **Astragalectomy for Inveterate Club-Foot.** He stated that of all the operative procedures employed in the treatment of inveterate club-foot, of which there are now a score or more, there is none so satisfactory as the removal of the astralgalus. Before the introduction of this method of operating surgeons were content in severe cases with results which today would not be considered satisfactory.

Time for Operation.—This operation should not be performed before seven years of age unless the bone is so greatly deformed that no other operation would be of any service earlier. If patients are treated from birth by mechanical appliances the deformity will be overcome in the majority of cases by the time the child begins to walk, or, at most, multiple tenotomies will correct the deformity. Dr. Young has performed this operation from five to thirty years of age in the severest class of cases.

Selection of Cases.—The use of skiagraphy is the best means of determining the necessity for this operation. If the foot is very resistent and the skiagraph shows that the astragalus could not be pushed between the malleoli, the case is a suitable one for operation. The removal of the astragalus will usually accomplish everything that is desired, but tenotomy of the tendo Achillis will be necessary in exceptional cases. Dr. Young has at times found it necessary to remove portions of the other bones and the tip of the external malleolus was once removed. The section of other bones should be avoided if possible because of the opening of the cancellous tissue and the increased danger of infection.

Technique.—Dr. Young has found it an advantage to use the Esmarch tourniquet without the use of the bandage to control the hemorrhage and to render the search for the articulations easier. The disadvantages of using the rubber bandages are not great and the hemorrhage afterwards is not greatly increased. The incision which Dr. Young prefers is the curvilinear one beginning above the peroneal tendon below the ex-

ternal malleolus and curving downward and backward to the anterior tibial tendon. This gives a larger exposure to the joint and facilitates the succeeding stages of the operation. Great care should be exercised in dividing the structures on the inner side of the bone for fear of wounding the posterior tibial artery. Catgut drainage is used and the wound closed with catgut sutures, and the foot retained in a plaster of Paris bandage for from three to five weeks.

The results of this operation are very satisfactory and motion is almost perfect. There is always a shortening of from ½ to ¾ of an inch, but when the operation is performed for double club-foot inequality of the limb is not present and the patient walks better than after operation for single club-foot. The case exhibited was a boy eight years of age who applied at the Polyclinic Hospital in May of the present year. It was a neglected case of severe equinovarus and was treated in the manner above described.

Dr. Hand, in discussing Dr. Young's case asked whether the operation was done in this case for talipes valgus. He had assisted Dr. Ashhurst some years before in an operation for talipes valgus after this method. This was the first time it had ever been done in this city and the result on the patient was good. He was not aware whether the operation was commonly used for this purpose.

Dr. Young, in reply to Dr. Hand, stated that the operation was rarely used for valgus, though not uncommonly employed for talipes varus. For instance, he had himself done the operation as many as four time in one week. This was, of course, an exceptional number, and this frequency of using the operative procedure was due to chance, but it is an illustration of the fact that the operation is not uncommon. It has been said that there is no case of club-foot which cannot be cured. This Dr. Young believed to be true if severe bone-cutting operations are carried out if necessary.

Dr. John H. Jopson reported two cases of **Urethrotomy for Impacted Calculus** in young male children. The first case was aged three years. After suffering from retention for twenty-eight hours it was brought into the Children's Hospital with a ruptured urethra and extensive extravasation of urine. The stone was found lodged in the bulbous portion of the urethra and was removed after perineal urethrotomy. The child did very nicely until the third day when he developed symptoms resembling scarlet fever—vomiting, rash, high fever, etc., and died six days later of heart failure. It was possible that the condition may have been one of septic intoxication. The second case, a boy 3½ years old, was also seen at the Children's Hospital, after a period of retention lasting for twenty-four

hours. When catherized a stone was detected in the bulbous urethra. Urethrotomy was also necessary in this case. There was a satisfactory recovery. Both stones were of small size—one rough, the other oval and smooth; both uric acid calculi. In one case straining at urination and stool was observed for two weeks before obstruction developed. In the second case there were no symptoms preceding retention. The uncertainty of diagnosis of calculus in children before sounding the bladder is undertaken is well known, but the possibility of the presence of a stone in cases of vesical irritability should always be borne in mind. Impacted calculus is the most common cause of urethral obstruction in children. Measures for the removal of impacted calculus in children are meatotomy and extraction by forceps in the anterior urethra and attempts to thrust it backward into the bladder and then to crush it when lodged in the deep urethra. Failure of these measures usually necessitates urethrotomy.

No discussion.

There was then a symposium on vaccination with the following papers:

Dr. Frederick A. Packard.—**The Technique of Vaccination.**

Dr. Morris Lewis.—**Remarks on what Constitutes Successful Vaccination.**

Dr. J. F. Wallis exhibited by invitation wax models illustrating different stages of **Vaccination**, and the different complications of the sore, the models being made by himself and Dr. Jay F. Schamberg.

Dr. Arthur van Harlingen,—**Remarks on Vaccination in Relation to Skin Diseases and the Eruptions Following Vaccination.**

There was then a general discussion.

Dr. Elgin, in reply to a question from the chair as to his views on the quality or singleness of smallpox and vaccination, gave a brief historical sketch of the work that had been done on this question, concluding with a reference to the work of Surgeon-Major King, who had vaccinated 350,000 persons with lymph derived from cattle which he had inoculated with small pox. Dr. Elgin considered that the two diseases are entirely the same, vaccination being smallpox modified by passage through resistent animals. The chief difficulty in the way of this theory, the only difficulty of consequence, is that cowpox has never been transferred back into smallpox. Generalized vaccinia is the only condition in which there seems to be a dis-

tinct possibility that such a retransference has taken place, but this is not contagious. There is a good deal of discussion whether such a thing as actual generalized vaccinia ever really occurs, but he believes that it does occur, and referred to cases which he had seen in which apparently indisputable generalized vaccinia had been observed.

Dr. CLEEMANN considered Dr. Lewis's success in his revaccinations very extraordinary. It seemed to him to mean that the protection afforded by vaccination does not last long, and it indicated to his mind that there should be strong regulations enforcing revaccination. Dr. Cleemann's own success in revaccination has been 50 to 60 per cent. of those vaccinated. Of his primary vaccinations in 44 children the vaccination failed in only one instance. This child was vaccinated three times before it took, and hence there appeared a special resistance to vaccination in this case.

Dr. STENGEL said that while his own success in revaccination was less striking than that of Dr. Lewis, it was nevertheless surprisingly high. He stated the following figures obtained in revaccination:

Positive results (first attempt)	78
Negative once, then positive	1
Negative once	13
Negative twice	16
Negative once, then doubtful	1
Negative three times	3
Doubtful	20

The term "doubtful" was used to indicate that the result was not known. Cases which looked doubtful were always revaccinated, and probably therefore a number of those given in the table as negative were really takes, but the success was not sufficiently evident to allow of their being included among those considered positive. There were then 132 cases and the successful results constituted 71 per cent., and all but one of these were successful on the first inoculation. All but two of these persons were known to have been vaccinated before. He observed one instance of raspberry sore, the only one he had seen this year. As most of the cases marked "doubtful" were done so recently that no report has been given, it is not likely that the percentages of successes will exceed that which the figures now indicate.

Dr. CLEEMANN also stated that he had seen one instance of raspberry sore in his recent vaccinations.

Dr. Meigs stated that the point that interested him most was: How often should revaccination be practised? He is a firm believer in the protective power of vaccination and considers it very unwise to do anything that could disturb the faith of the public in it. He read extracts from Seaton showing this author's firm belief that more than one revaccination is unnecessary. He considers that there is no evidence to show that it is of any use. He believes that the revaccination pock does not resemble the primary pock 1 in 100 times. It is impossible in most cases to produce a typical vaccination after the patient has been once successfully vaccinated. There is a good deal of reason to believe that a good primary vaccination during infancy and a good revaccination after puberty afford the best possible protection against smallpox. It may be well during epidemics of smallpox to vaccinate again those who have not been vaccinated for many years, but it is certain that advice from physicians that vaccination should be practised very often will injure the cause of vaccination, and this is much to be deplored, for it is the most certain and satisfactory preventive for a disease that is yet known to science. To advise people to be vaccinated every two years is most unreasonable. It is a great pity that some conclusion cannot be reached in regard to how often persons should be vaccinated during an ordinary lifetime, and the present uncertainty of physicians in regard to this question hurts the cause of vaccination.

Dr. Scott referred to the fact that the British Smallpox Commission concluded that revaccination should be practised every five years and that immunity from vaccination is probably not of over five years' duration. He considered that if we believe in vaccination at all we must believe that people who can be successfully vaccinated are in danger of taking smallpox. One fact which had interested him greatly and which he had not heard referred to in the discussion was that the scar left after the use of glycerinized lymph is wholly different from the usual old-fashioned typical scar of vaccination; indeed, there is often after the removal of the scab practically no scar at all and usually no depression. Yet the pock developed after the use of the lymph is perfectly typical, and there is every reason to believe that this lymph is quite as potent as the older virus. The difference in the scar is probably due to the fact that in using glycerinized lymph we have a purer product which causes less reaction.

Dr. Leidy, in referring to the question of the frequency with which a person can be successfully vaccinated, stated that in 1897, after being exposed to smallpox he had had been vaccinated and it took typically. In 1900 he was vaccinated once more and there was again a satisfactory take. During this fall he had once more been vaccinated but without success. The

previous results, however, show that it is quite possible for a person to have two satisfactory attacks of vaccinia within three years.

Dr. Elgin, in response to a question as to the frequency with which revaccination will take, stated that within three years he had come in contact with about 300 persons who were engaged in the preparation of vaccine virus and numerous accidental inoculations had been seen. For instance, he knew of a number of cases in which within two weeks or so after beginning work in the laboratory an individual would present himself with all his fingers covered with vaccine vesicles. He has also seen typical vesicles on the lips, even on the middle of the tongue, and in various other situations from accidental inoculation. These persons may show, and in several instances have shown, in his experience, new typical vesicles on their fingers or elsewhere within four weeks after the primary sores had subsided. He had repeatedly seen such persons show typical vaccinia again within twelve months. As to immunity to vaccinia, he considers every individual a law unto himself. Vaccinia may protect against vaccinia for a month or it may protect for a lifetime. An example of the importance of not being content to believe that a person is immune to vaccinia, and that he should persist in being vaccinated so long as he is in danger of taking smallpox whether the vaccination is successful or not, was shown by the case of a physician connected with the Health Board in Manila, which he cited. The physicians on this Board had been in the habit of vaccinating themselves once every month. The special physician referred to had finally omitted this practice since for a long time vaccination had been unsuccessful. Some months after he had given up the attempt to vaccinate himself he took smallpox and died of the disease. It is probable that if this man had persisted in vaccinating himself he would ultimately have succeeded, and would have more or less protected himself against the onset of smallpox. As to the constant protection which vaccination exercises against smallpox, he referred to the experience of the last twenty months in Chicago which showed that the earliest case of smallpox occurring after vaccination appeared sixteen years after the patient had been vaccinated.

Dr. Codman, in referring to the use of various preparations of vaccine stated that when using the glycerinized lymph he had had only one take in three. He then tried the dried points and was successful in only one case in five. The glycerinized points in capsules were then tried and nearly all took, but in very severe form, the local reaction being so severe as to make him suspect that this vaccine carried some other infection with it. As to the scar left after the use of the ordinary tubes, he had regularly observed practically no scar; after the use of points

the scar was more marked, and after the use of the points in capsules (as was to be expected from the greater infiltration and the more frequent cellulitis and marked general symptoms) there was often a severe scar. He had heard a number of physicians recommend the use of bichloride solution in sterilizing the arm before vaccination. It is to be anticipated that this would prevent success in a number of instances and he had demonstrated this to his own satisfaction and had wholly given up the use of bichloride, because it evidently interfered with the success of the vaccination.

Dr. D. J. M. Miller considered that as revaccination seems to be successful in such a very large percentage of cases, a successful revaccination cannot be a sign of susceptibility to small pox. Dr. Lewis had had 85 per cent. of successes in revaccination; if this proved that all persons who could be successfully revaccinated were actually susceptible to smallpox we could with reason expect the present epidemic of smallpox to be much more widespread than it is. As an instance of the fact that vaccination does not always protect against vaccinia for any considerable period of time, he referred to the case of a woman whom he had vaccinated and who on the eighteenth day after her vaccination accidentally scratched her arm just below the sore. In some way some of the discharge from the sore had been inoculated into this scratch and a typical vaccination sore developed in due time, i.e., typical for a secondary vaccination.

Dr. Wallis stated that in primary vaccination he had obtained about 99 per cent. of successful results, using a method that, so far as he knew, was originated by him. He always uses the tubes of glycerinized vaccine. He believes that the cloudy mass containing epithelial cells, detritus, etc., is perhaps more active than the clear fluid; he consequently breaks the tubes in half and in this way is able to empty them more completely and thereby gets more satisfactory results. Still better results were obtained by using two tubes of vaccine probably because an occasional tube is inert; therefore, for economy's sake, but in order to use some vaccine from each of two tubes, he is in the habit of breaking two tubes in half, and uses the vaccine from each half tube. In vaccinating, after adopting this last-mentioned method, he obtained very striking success. In all, including both secondary and primary vaccinations, his success has been about 85 per cent. The greater part of his secondary vaccinations were carried out in children and in most of them he obtained typical sores. He considers that the statement that secondary vaccinations as a rule do not show typical sores is incorrect. To emphasize this view he directed attention to the models which he had presented which were all from cases of secondary vaccination, and which, nevertheless, showed typical sores.

Dr. McKee asked Dr. Elgin what microscopic or bacteriologic studies were pursued in the preparation of the virus.

Dr. Elgin replied that the virus when obtained from the animal is placed in cold storage for about thirty days. As it comes from the animal it contains from 30,000 to 100,000 organisms to the cubic centimeter, part of them pathogenic, part of them not. When the virus is placed in cold storage the number of organisms constantly diminishes and at the end of about thirty days there are practically no pathogenic forms left. When plate cultures show that the pathogenic forms have disappeared the virus is placed on the market.

Dr. Marcy asked whether anyone present had had any experience in vaccinating people who had previously had smallpox. He had vaccinated three persons who had previously had smallpox, and of these three showed successful takes. He always uses the tubes of glycerinized vaccine, and in primary vaccination has had about 80 per cent. of successful results, the sore running a typical course. In revaccination he has had almost 70 per cent. of successful results, but the sore was usually not typical. He had recently observed many severe lesions, particularly in revaccinations, and he wondered if the virus was all that it should be, and thought that perhaps the recent demand for virus had been so great that the manufacturers may have put on the market virus that had not been kept sufficiently long in contact with the glycerine to have destroyed the other pathogenic organisms.

Dr. Wallis stated that his experience had been that people who have had smallpox frequently take vaccinia. He had vaccinated a number of persons who had had smallpox and had very often been successful; one of these persons had had smallpox twice. In no instance was vaccination successful in an individual who had had variola within ten years.

Dr. Stengel asked Dr. Elgin whether he had had any experience as to the frequency with which the virulence of vaccinia in cattle wears out; or whether there is any evidence that the virulence does wear out.

Dr. Elgin replied that it is doubtful whether the virulence ever wears out. The calves do not take so well during some periods of the year as at others, but this is particularly in the summer and probably is the effect of the heat and not of change in the virus.

Dr. Eshner stated that in discussing the question of immunity to smallpox and immunity to vaccinia, as of immunity

in general, it should be borne in mind that this is always relative only and never absolute, so that if a vaccinated person be exposed to smallpox or be subjected to vaccination, the result will depend not alone upon the individual susceptibility, but also upon the virulence of the hypothetic micro organisms of the respective infections. As to the frequency with which vaccination should be practised, he believes that this should be done in the first year of life, again at about puberty, and finally at about the age of 35. Additionally, in times of epidemic it would be wise to vaccinate. In this way the individual can be rendered reasonably secure against infection with variola.

Dr. Scott considered that the question which was to his mind the most important that had come under discussion had been practically avoided by all speakers excepting Dr. Eshner. This is the definite determination as to the frequency with which revaccination is necessary. He requested an expression of opinion from all upon this point, as it is an important one to settle, both for the physician and for the layman. For himself, he depends largely upon the reports of the British Smallpox Commission, and revaccinates every five or seven years.

Dr. Lewis, in closing, stated that he had failed in vaccinating persons who had previously had variola. He referred to the fact that his results from vaccination this year and during the epidemic in 1895 had been very different. The local reaction in his experience had been much less marked than in 1895, and indeed he had had but few cases of serious local inflammation. This he attributes to greater care in vaccination, and to the use of glycerinized lymph instead of the old-fashioned points. His percentage of successful vaccinations has also been higher with the glycerinized lymph; this was particularly noted in secondary vaccinations.

Cochineal in the Treatment of Whooping Cough.

Dr. Hesse (*Therapie der Gegenwart; Médecine moderne*, October 9, 1901) has treated fifteen children affected with whooping cough, with a resulting cure in five weeks, and even, in six cases, in three weeks. The following is the author's formula:

℞ Powdered cochineal...from 15 to 30 grs.
Potassium carbonate.. " 30 to 45 grs.
Distilled water.....3 ounces
White sugar.....2½ drams

M.—A teaspoonful every two or three hours.—*New York Medical Journal.*

PRACTICAL NOTES

A Contraindication to Circumcision.

Rey (*Jahrbuch für Kinderheilkunde*, June, 1901) of Aix-la-Chapelle, contributes an article against indiscriminate circumcision. He gives a definite contraindication thereto, which has not been properly recognized as yet, namely, cystitis, the signs of which often escape notice, or are mistaken for those of a tight prepuce. In infancy there is naturally what may be called physiological phimosis, and the foreskin cannot be retracted without exerting undue force. It grows looser, and its orifice expands during childhood, so that by eight years of age it can be readily brought back over the glans. Failure of ready retraction in early childhood, therefore, does not indicate operation and causes no symptoms. If the infantile condition persists into adolescence and then gives rise to difficulty, or if there is a congenital narrowness of the opening, causing symptoms from the first, operation is of course required. The Jews perform the right on the eighth day, the Egyptians and Turks at puberty, while the Persians choose the sixth year. None of these nations select the ages between one week and five years, and that is the period in which it has become recognized lately that cystitis is a very common complaint. Urinary troubles, indeed, during that period are very seldom due to phimosis, but usually to urethritis or cystitis, and these diseases are the strongest contraindication against producing a wound at the end of the penis. Of cystitis, the first signs are an ammoniacal odor of the napkins, and the reddish ring-like stains on them. It soon produces a peculiar intertrigo which, avoiding the folds in the skin, which are protected from the acrid urine, affects those parts in contact with the wet napkins. This distribution distinguishes it from eczema and ordinary intertrigo. The passage of urine is interfered with by reflex impulses from the inflamed bladder wall, hence the temporary attacks of retention. The end of the penis gets inflamed or ulcerated from evaporation of the urine and external pressure. The prepuce becomes swollen and its orifice is

pushed out of line with that of the urethra; hence the sac gets irritated by urine which decomposes. But if there is no prepuce in front of the glans, the latter becomes the end point subject to the corroding action of the evaporating urine, and ulceration of the urethral orifice is liable to ensue. This may go on to stricture, and even cause death, by the effects of the backward pressure, or it may leave scars there which in later life set up intractable nocturnal incontinence of urine. Rey declares that the really bad cases of that complaint in his experience occurred in children with defective or removed foreskins. The prepuce, whose function has long been debated, and which has often been deemed worse than useless, can thus be seen to be a great protection to the glans should cystitis arise. On this account Rey advocates the avoidance of circumcision till after the fifth year, except it be required soon after birth for congenital cases not curable by dilatation. Inflammatory conditions of the prepuce require gentle dilatation and antiseptic lotions syringed in. Cure the inflammation in the mucous membrane of the urinary passages by milky diet, calomel and salol, and the swelling of the prepuce and the reflex retention of urine will soon subside. The bad effects of operating where there is cystitis are the following: Bursting of stitches, ulceration of the wound edges, extreme edema—sometimes permanent, relapse from cicatricial contraction, and, worse than all, ulceration of the urethral orifice. These are common mishaps after circumcision and have been looked upon as unavoidable. Now they should be known to be due to operating at all upon cases which require really nothing but medical treatment.—*Brit. Med. Jour.*

For Otorrhea.

The *Gaceta medica de Costa Rica* for September 15, 1901, ascribes the following to Botey:

℞ Distilled water.....60 minims
Alcohol.....60 "
Perchloride of iron.....30 grains

M.—Three or four drops to be instilled into the external auditory meatus two or three times daily.—*N. Y. Med. Jour.*

ABSTRACTS

STATE AND INDIVIDUAL PROPHYLAXIS OF TUBERCULOSIS DURING CHILDHOOD, AND THE NEED OF CHILDREN'S SANATORIA.

S. A. KNOPF (*N. Y. Med. Jour.*, Nov. 30, 1901) says: Bacillary transmission, coming directly from the paternal side through the sperm, has been experimentally demonstrated. Clinically, however, the cases are exceedingly rare.

The extreme rarity of primary genital tuberculosis in the vagina or uterus seems the best clinical evidence that direct paternal bacillary transmission of tuberculosis practically does not exist. Maternal bacillary transmission, on the other hand, can take place through the ovum or by way of the placenta. Forty such cases of indisputable congenital tuberculosis traceable to maternal origin are now on record. This number, however, is infinitesimally small compared with the number of authentic cases where the fetus or child of a tuberculous mother has been carefully examined without finding the slightest trace of tuberculous disease, either clinically, bacteriologically, or pathologically.

Thus it seems to us that we might consider bacillary transmission, even from the maternal side, so exceedingly rare as to leave it out of consideration in studying how to prevent tuberculosis in childhood. Let us rather assume two cardinal points: First, that tuberculous infection, contracted in whatever way, during infancy or childhood comes from without and not from within. Secondly, that there may, however, exist an hereditary predisposition to tuberculosis.

As to the modus operandi of the infection of children, we have, of course, no statistics. To ascribe the very frequent intestinal tuberculosis found in childhood exclusively to a tuberculous milk supply would be unscientific. There is no doubt that many a child has been rendered tuberculous because of taking tuberculous food coming from diseased cows, but in as many, perhaps even in more, cases intestinal tuberculosis is secondary and has resulted from the ingestion of pulmonary secretions, since small children never expectorate. Autopsies seem to show that a very large percentage of children have contracted tuberculosis by inhalation, since the bronchial glands harbor the oldest foci and seem thus to represent the point of entry of the bacilli. The presence of bronchial and pulmonary foci and tuberculosis of the mesentery glands, when all lesions seem to be of the same duration, may well be explained by a double infection of the respiratory and alimentary tracts of the child.

Wherever there is a consumptive, ignorant or careless with his expectoration, there is danger to the life of a child, and it is not at all necessary that the child should come in close contact with this individual. Cases have been reported where children given into a family to board

became tuberculous owing to the presence of a consumptive in that family. Excluding the infection from pulverized tuberculous sputum or from tuberculous saliva during the act of kissing, it is not unlikely that drop infection was in such cases sufficient to render the susceptible organism of a child tuberculous. Thus it would seem best that in all cases the consumptive should be kept away as much as possible from the child, and the greatest care should be exercised in selecting a home or attendant.

The infection of an infant from tuberculous sputum can happen in various ways. At the moment of the child's birth, if it should happen to be asphyxiated, the physician or midwife may apply his or her mouth to that of the infant and inflate its chest to bring the respiratory organs into play. If the operator is consumptive, the danger of imparting the disease to the infant is evident.

Tuberculous mothers and fathers are, as a rule, taught not to kiss their children on the mouth; but this injunction is not always obeyed, because it had not been accompanied by an explanation that not only the secretions from the lungs, but also the saliva, may be bacilliferous. Tuberculous mothers will sometimes refrain from kissing their children, but owing to insufficient knowledge they will often feed the children with spoons they have just put into their own mouths to taste the food. Again, the tuberculous mother, since she is forbidden to give the child the breast, may frequently taste the milk through the child's rubber nipple and, without cleaning it, insert it into the baby's mouth.

Inoculation during early infancy has been observed in Jewish children as a result of ritual circumcision by a tuberculous operator.

When the child is old enough to creep about and play on the floor, it is exposed to three methods of infection at once. If there is a consumptive in the family and he is careless, ignorant or helpless, there will be ample opportunity for the little one playing on the floor to inhale the dust laden with bacilli coming from the dried and pulverized expectoration. Like all children, it will touch everything on or near the floor and then put its fingers into its mouth.

To prevent such inoculation, the mothers and nurses should see that the children's fingers are kept as clean as possible and their nails cut. As long as the child is too small to clean its nose, regular nasal toilets with some mild borated solution or warm, previously boiled water should be instituted. Eczemas and other skin eruptions should receive immediate medical attention, for, as has been said, left to themselves, they may give entrance to tuberculous infection.

To assure a rigorous prophylaxis against tuberculosis from the very earliest day of childhood, the author does not know of any better plan than to have printed directions issued by the board of health, which should be placed in the hands of every physician and midwife to give to the future mother, to the nurse, or to the immediate members of the family. These instruction leaflets should contain everything relating to prophylaxis, general cleanliness, ventilation, nutrition, etc., and should be printed in plain, comprehensible language.

To avoid the inhalation of tuberculous matter the greatest care should be exercised on the part of parents, relatives or friends with whom the

child lives. The well known precautions concerning the tuberculous expectoration, and also drop infection, should be rigidly adhered to by every one who may come in contact with a child. The child should not sleep with a tuberculous mother. It should have its own little bed from the day of its birth. The child should never be taken on visits to consumptive friends or relatives. Day nurseries or infant-shelters where working-women leave their children should be subject to rigid sanitary supervision, and no tuberculous individual should be engaged as an employee in such an establishment.

To combat the danger from ingestion of tuberculous milk is, of course, primarily a duty which devolves upon sanitary authorities, the state, county or city boards of health respectively. It is the duty of these authorities to make the sale of tuberculous milk practically impossible. But to all mothers who do not nurse their children, to boil or sterilize the child's milk should become a religious duty, particularly in cities, where one is never certain of the absolute purity of the milk. Whenever it is possible, cow's milk should be replaced by goat's milk, which, as is well known, is never tuberculous. When the child grows older and eats meat all that is of doubtful origin should of course be thoroughly cooked.

To kiss the child on the mouth should not be allowed in any case, and as the child grows older it should be taught not to kiss strangers at all and relatives and friends only on the cheek. Caressing and kissing domestic pets, such as parrots, canary birds. dogs, cats, etc., should be discouraged. The remnants of food left by a tuberculous invalid should not be eaten by anyone, but more particularly not by a child; neither should the latter eat any food handled by a consumptive.

The floor of the rooms where the child lives and on which it may play should not be carpeted. It should be kept scrupulously clean, and, if desirable, a clean mat may replace the carpet. To keep the ordinary wooden floor clean and, as far as possible, aseptic, the use of petroleum wax should be endorsed.

Another very simple, but perhaps also somewhat less secure measure to avoid this kind of infection, is always to place a clean sheet on the floor before the child is set down to play.

Dry sweeping should not be permitted in children's rooms; if wiping the floor is not practicable it should be swept with moistened sawdust.

Expectorating on or near public or private playgrounds should be considered a misdemeanor and punished accordingly. These grounds should be kept specially clean and from time to time be strewn with clean gravel.

The greatly-loved visits of little ones to menageries must be of concern to the sanitarian who desires to protect the children from tuberculosis. To visit the ape house in the zoological gardens and to remain there as long as possible is the delight of children, and yet perhaps, next to cattle, there are no animals so subject to tuberculosis as apes. Add to this the commotion, dust and impure air in the average ape house at the usual time of the children's visits and one cannot help thinking of an absolute danger.

The same hygiene which should prevail in the kindergarten and play room should of course also be universal in the schoolhouse. School chil-

dren should be taught the use of cuspidors and handkerchiefs. Expectorating anywhere except into a proper receptacle should be punished in the same way as any violation of class rules. The elevated, non-breakable cuspidor should be given the preference to the ordinary porcelain or glass cuspidor placed on the floor.

To avoid drop infection—that is to say, the ejection of small particles of bacilliferous saliva during the so-called dry cough or sneezing, children should be taught to always hold a handkerchief before their mouth while coughing or sneezing.

Obligatory periodical disinfection of the schoolroom by formaldehyde gas may also be advantageously instituted. To make the disinfecting and cleansing of the classroom as thorough as possible, chairs and desks be so constructed that they can be easily folded together after school hours. As another sanitary measure I would insist lady schoolteachers and the grown-up girl pupils should not, under penalty of discharge, be allowed to wear trailing dresses. The short, rainy-day skirt is certainly far more sanitary than the trailing skirt, which so often is made to do the scavenger's dirty work.

While children suffering simply from scrofulous manifestations might be permitted in public schools, no pupils suffering from pulmonary tuberculosis or teachers afflicted with the same disease should ever be allowed there.

The chest of every child attending the public school and of every teacher teaching there should be carefully examined at least twice or three times a year, if owing to a large number of pupils this cannot be done every three months. Through the early discovery of tuberculosis in a pupil, immediate warning to the parents and timely and judicious treatment many a young life will be saved.

It is well known that the transmission of a tuberculous tendency comes most frequently from the maternal side. The most radical means of preventing a progeny subject to tuberculosis would of course be the interdiction of marriage to all tuberculous individuals. Our present state of society and our conception of individual liberty will scarcely make it possible for the time being to inaugurate legislative means to counteract marriages between tuberculous individuals. General education and enlightenment on this question may be helpful as a prophylactic means, but the family physician will have to do the bulk of the work in preventing such dangerous unions.

To bring about abortion when a probably tuberculous conception has taken place the author considers useless. Though the mother may be suffering from tuberculosis and the child seemingly be doomed to become a candidate for consumption, modern phthisiotherapy has taught us not to despair, and we may save the lives of both; but we must begin by treating the child in utero, and with this of course begin a thorough treatment of the mother's condition.

A woman who is to give birth to a child should abandon the corset and tight clothing in time to allow a continued, free abdominal and thoracic respiration.

The new-born child is in need of pure, fresh air as much as the mother and the lying-in room and the nursery should always be very well ventiated.

Frequently also mouth-breathing in children and sometimes in adults must be attributed to adenoid vegetations in the retropharynx or to enlarged tonsils. These, as well as all other causes of obstruction to a free, natural respiration, such as a deviated septum, enlarged turbinated bones, hypertrophied mucous membrane, polypi, etc., must be removed if we desire to protect the child or adult from chronic nasal, pharyngeal, or laryngeal catarrhs, so often the forerunners of pulmonary disease.

The proper bringing up of children that have a tendency to become tuberculous is of the greatest importance. The dislike for out-door play, which is so characteristic of the little candidates for tuberculous disease, can also be overcome by discipline. To dress them too warmly and bundle them up all the time is as injurious as having them remain most of the time indoors. This hardening of the constitution will be the best method to counteract a disposition to take cold easily, which in children predisposed to tuberculosis has often a tendency to develop chronic catarrhs of the respiratory tract.

He considers the air-bath and sun-bath for children at the earliest age most beneficial. Let the little ones toddle around naked every day for a short time; in cold weather in well-warmed rooms, and in summer in a room bathed by the rays of the sun, but always on a clean floor or clean Japanese matting. With their growing intelligence, children should be taught by practice and example the value and the love of pure, fresh air. As soon as the age and intelligence of the child will permit, breathing exercises should be taught him, He should learn to like them as the average child does general gymnastics.

Public as well as private schools and colleges should be model houses in regard to cleanliness, hygiene and constant ventilation.

Instruction in elementary hygiene should form a part of the curriculum of all schools; this course might be advantageously given by the school physician. Overwork during school life is often an indirect cause of furthering a tuberculous tendency in children and indeed it is injurious even in a healthy child. It is in such cases that the school physician's intervention may indeed prove the saving of a child's life. Botanizing tours and geological excursions should be frequent for all school children and singing and recitation in the open air during the warmer season be made a part of the daily curriculum.

In choosing his future career the young man born with peculiar susceptibility should seek professions which will demand outdoor life. Farming, gardening and forestry will assure him the longest and most useful existence.

Hydrotherapeutics as a measure to prevent pulmonary tuberculosis tends to develop the most vigorous action the vasomotor system; it also should be instituted at an early age. A child a few months old can support with impunity a rapid sponging off with cold water after its warm bath, followed by a relatively vigorous friction with a very soft Turkish towel.

There should be many small parks and playgrounds and public baths for old and young in the densely crowded districts of our large cities. City parks have justly been called the lungs of great centers of population.

The same sociological conditions which further tuberculosis in the pulmonary form further also scrofulous diseases. Unsanitary, overcrowded tenements, houses built on damp soil, etc., are some of them. Children of syphilitic and alcoholic parents are particularly prone to tuberculous and scrofulous affections. In seeking to prevent tuberculous and scrofulous disease in childhood we must combat our two great social evils, syphilis and alcoholism and improve the housing of the poor. He denounces also very strongly the employment of children under fourteen years of age for labor in various industries, requiring often from six to ten hours of continued manual labor.

As to what is best to do for the underfed pupils, the children of poor parents, so often irregular in attendance at school because of tuberculous or scrofulous disease, provide them with a luncheon of few good meat sandwiches and one or two glasses of good milk.

To avoid a pauperizing tendency, a few pennies may be charged for these luncheons: This practice is in vogue in Boston, Mass., and works most satisfactorily.

For children suffering from either tuberculous or scrofulous manifestations the medicinal treatment is well known. Cod-liver oil, arsenic, iron, but above all, the hygienic and dietetic measures, aerotherapy and solar therapy, under constant medical supervision in a good, healthy locality, preferably in sanatoria erected for that purpose in the country or on the seashore, have proved to be the most efficacious means of treating thase diseases during childhood.

The prophylaxis of tuberculosis during infancy and childhood should engage the attention of physician, sanitarian, statesman and philanthropist alike.

PEDIATRICS

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EDITORIAL COMMENTS

The Occurrence and Care of Acute Bronchitis in Winter

The raw weather of northern winters makes this topic always important. For dwellers in cities winter bronchitis is by no means a trifle. In infants and young children it is the familiar winter substitute for diarrhea in summer, and among adults, particularly those who live under the trying conditions of the tenements, it outnumbers far away all other winter diseases. Undoubtedly the most important element in etiology is the inhalation of bacterial dust. This is flying everywhere in closely built towns and cities, and until people can be brought to realize the danger of promiscuous spitting, pathogenic bacteria in untold myriads will continue to fly. They are thicker of course in cars, steamboats and ferry houses; and in those dwellings where register heat is provided from basement furnaces with an "intake" near the ground and no straining apparatus they are also apt to be numerous.

How the bacteria may be avoided is consequently a grievous question, which for the multitudes who must travel on the streets or in the cars admits of no present answer. Till the external conditions improve the only way of escape is in the increase of one's resisting power. This is, of course, the salvation already of the thousands who do not suffer, but for those

who do, some simple prophylactic and therapeutic suggestions may not be out of place.

First, as to the prophylaxis; the danger of sudden chilling of the surface of the body is familiar. Some people "take cold" with peculiar readiness from sudden exposure of *certain parts* of the body, as the ankles, in changing on a cold day from high to Oxford shoes; or the neck, when a low collar is substituted for a high one. One should remember, too, that the momentary resisting power of the body is greatly reduced by physical fatigue or exhaustion, and that bacteria will start a growth readily in one case where they might have been successfully opposed in the other.—The air one breathes is also of prime importance. Air, in-doors and out, is vitiated for breathing purposes in various ways: the waste from gasworks, the effluvia of sewers, the chlorine, bromine and sulphur dioxide of laboratories, the formaline vapor of medical museums,—are as fruitful means of lowering the tone of the bronchial mucosa, as the better understood matters of human exhalations and promiscuous dust. That tobacco smoke harms acute cases goes without saying, though with the chronic ones it may be otherwise. Ventilation, therefore, is a question of urgent importance, upon which, however, this would not be the proper time to enlarge.—Daily cold bathing, particularly of the neck and chest, is an excellent prophylactic. Delicate and aged persons may substitute for the plunge or the shower simple cold sponging.

When once the bronchitis is caught the patient should simply go to bed at once (with or without the existence of fever) and stay there till well on the road to recovery. Steam inhalations (medicated, perhaps, with carbolic acid or compound tincture of benzoin) will be of service. Great care should be exercised about the ventilation of the room; a thermometer should be kept (*on the level of the bed*) at 65° or 66° F. Light diet, a purge and ammonium chloride with heroin will be enough in the way of active treatment. Physical exercise should be sparing during convalescence till all danger

of relapse has passed.—In fair weather, and after defervescence the patient should wrap up warmly and lie in the air on the verandah, if such a structure is available.

When city cases come to the doctor's hands after five or six weeks of alternate improvement and relapse, the patient should be sent away as promptly as possible to the country, or if circumstances permit, to a southern climate. In the choice of a climate sunshine, atmospheric dryness and reasonable equability of temperature are of more importance than mere warmth. In this connection it would be well to warn the patient to take his heavy underwear and overcoat south with him, for no weather is made to order; no later than last week it was 16° F. at Charleston, S. C., 17° F. at Camden, S. C., and not much above this in northern Florida. These are temperatures which are quite low when one remembers that southern houses are not built to withstand the cold. A well known professional man in New York, who has immense experience in such matters, remarked recently that his more delicate cases he did not permit to come north again till the 20th of April. Robust young persons will often get well of the most obstinate bronchitis in a week or ten days under wise climatic treatment, and may come home as soon as they are restored to normal health. B.

Asphyxia, Incipient.

Always suspect some foreign body or substance in the air passages and, if possible, immediately remove it. Arrange for access of fresh air; raise head and upper part of body; remove tight dress, collars, corsets, etc. Irritation to the skin should be produced by sinapisms; stimulate respiratory center by electricity, if time allows.—*Merck's Archives.*

ORIGINAL ARTICLES

THE ACTION OF HEAT UPON COW'S MILK AS AN INFANT FOOD.

By S. Henry Dessau, M.D.,
New York City.

THE study of the action of heat upon cow's milk in its preparation as an artificial food for infants has up to the present time been pursued along lines for the destruction of any disease, producing germs likely to be conveyed by the milk into the child's stomach. It is proposed in this paper to invite attention to an equally important feature of the action of heat upon cow's milk, viz., its chemical action, it being already conceded that the great importance of the action of heat as a destroyer of pathogenic germs has been finally settled.

In order that the subject may be presented in a clear and intelligible light, cow's milk should be regarded in the first instance, when used as a food for infants, as a raw article of diet. It is perfectly true that in taking this view of the matter we are confronted with the fact that human milk is fed at body temperature only. But human milk is one thing and cow's milk quite a different thing, and although both contain practically the same elements of nutrition, as fats, proteids, sugar and salts, those in cow's milk are not only in some respects, as salts and extractives, entirely different in kind, but the relative proportions of the other elements vary to such an extent from those of human milk that in its total composition it is practically an altogether different compound.

If we take this view of the matter it must at once occur to us on reflection that it would be entirely consistent to treat cow's milk, especially when used for infant food, as all other animal food for human use is treated, with the possible exception of certain molluscs, by a proper method of cooking.

Perhaps the primeval custom of using cow's milk in the raw state as a nutritous drink for adults led to its use also for

Read before the New York Academy of Medicine, Section on Pediatrics, January 9th. 1902.

infant feeding. Cow's milk, owing to its difference in composition in mineral and organic elements from that of human milk, behaves entirely differently in the infant stomach, causing it to be primarily difficult to digest. This difficult digestion of raw cow's milk by infants, which should concern us as medical men as a point of the highest importance, is due to the peculiar manner in which the curd forms. Notwithstanding this fact the long and wide experience of the medical profession the world over has convinced them that cow's milk is the best and most available article as a basis for the preparation of a substitute for human milk that nature presents. If we inquire into the relative difference between human and cow's milk, both as to the proportions of the various constituents and the manner of their behavior in the infant stomach, we are told that not only are the total proteids of cow's milk, consisting of caseinogen, lactalbumin, the nucleins and globulins, in larger percentage than in human milk, but that the relative proportion of the caseinogen to the lactalbumin is as 4 or 5 to 1 in cow's milk, while it is ½ or 1 to 3 in human milk. Besides this, according to Hutchison, there is six times the amount of calcium salts and three times the amount of acids, principally phosphoric and citric, in cow's that there is in human milk. These two features are said by Hutchison to account for the formation of the large, heavy, dense cheesy curds formed under the action of the milk-curdling ferment associated with a small quantity of the acids of the gastric secretion of the infant stomach. We see this demonstrated in the rejected contents of the infant stomach, where the curd of raw cow's milk is in marked contrast to the small, soft, flaky curds of human milk seen in the pukings of a breast-fed infant. This peculiar character of the curd of raw cow's milk at once suggests to the medical mind a condition of difficult digestion, when it is considered that the large, dense masses are to be disposed of by the weak physiological functions of the infant stomach. Drawing deductions from clinical experience, there is every reason to believe that these conclusions are correct. Hence it is, that since the first days when some substitute for mother's milk that could be generally useful had of necessity to be provided, the indigestible quality of the curd of cow's milk was recognized as the one great obstacle to its perfect adaptability as an infant food.

Many methods have been proposed from time to time to

correct or modify this difficulty only to be abandoned in favor of some more improved plan later on. Probably among the first of these was the efficacy of simple dilution, though not intended exactly for such purpose, and which, as will be shown later on, still survives as an aid to heat. It is quite true that from the earliest times old nurses were in the habit of boiling the milk before feeding it to infants, supposedly to prevent colic but actually to improve its digestion, but this domestic practice was not given much thought until the advent of bacteriology into medicine. It was under the stimulus of bacteriology that Sohxlet introduced the application of a high and prolonged degree of heat for purposes of sterilization in the preparation of cow's milk as an infant food. The results of this method were at first hailed with joy, as it was soon apparent that in large cities where infant mortality during the summer months was always high, a steady decline occurred in the summer mortality which, as we know, is principally due to intestinal disease dependent in a large measure for its origin on indigestion. That the summer diseases of infants may as reasonably be attributed to such source as to that of germ infection through the food is evident when it is borne in mind that all of the physiological functions of the infant, primarily weak, are further depressed by the high and prolonged temperatures which predominate as a factor at that season. These results would seem to establish the fact of the easy character of the digestion of sterilized cow's milk. Besides this, it is noticeable that the curd of sterilized cow's milk, as seen in the infant pukings, is closely similar to that of human milk. The same observation as to the character of the curd may be noticed in condensed milk, and it is a fact well known to old housewives that boiled milk will not make junket with rennet, but for many obvious reasons no further reference to these articles need be made. This point as to the curd formation appears to have been totally disregarded by pediatrists while searching for a means to destroy germs without doing injury to some of the other vitally important ingredients of cow's milk that are so necessary for the healthy growth and development of the child. But when sterilized cow's milk was used as a daily food for healthy infants for a length of time, it was frequently observed that in spite of its easy digestibility the child began to lose ground, and many instances of a comparatively new disease affecting infancy, recognized as scurvy, began to appear.

Inquiry into the causation of this trouble by properly equipped investigators informed us that, in the first place, a lower degree of heat than that used by Sohxlet was just as efficient for destroying all forms of growing germs. Professor Russell, of the University of Wisconsin, has found that 99 per cent. of vegetating germs commonly found in cow's milk are made sterile when exposed for ten minutes in a closed vessel to a temperature of 140° F., and for fifteen minutes in an open vessel at 160° F. In the second place, and this was the solution of the etiology of infantile scurvy and also of occasional cases of rickets, the high degree of heat used in Sohxlet's method of sterilization produced many chemical changes, causing new combinations to occur to the detriment of certain nutritous elements of the milk as a food. Such disturbance of the calcium salts in their combination with citric and phosphoric acid took place as to render them insoluble, thereby destroying the antiscorbutic properties of the milk. At the same time the fats were undoubtedly partially decomposed, favoring butyric acid fermentation in the infant's stomach, and the globulins and nucleins, which are the phosphorus-bearing or anti-rachitic elements were coagulated. The question remains. What change takes place to influence a modification of the curd formation of the caseinogen of sterilized cow's milk. The only satisfactory answer that can be given to the question in my humble opinion is the action of heat at or above a certain degree upon the caseinogen. This view is based upon a long-continued observation of many infants coming under my care in actual practice. I believe that Jacobi enunciated a great truth bearing upon this question, when, in his report on infant feeding presented to the Paris International Medical Congress of 1900, he stated that the one great progress that had been made in infant feeding these dozens of years was the heating of cow's milk, and, although from the context he evidently refers to methods of sterilization, yet it will stand as classical authority for generations to come.

The chemical effect of heat upon the digestibility of foods in general has never received adequate recognition from medical men, and when we need to deal with so important a substance as cow's milk as a substitute infant food, which in its very nature is of such a delicately complex character, representing, as it were, a special form of disintegrated protoplasm, it can be easily understood why there should be at the present

time so much diversity of opinion concerning the method of its application. It will thus be seen that the principle of heating cow's milk as a food for infants is a much broader subject than was originally supposed. One has only to read a most entertaining and instructive article from Professor Remsen, of Johns Hopkins University, published in *McClure's Magazine* for February, 1901, in order to be impressed with the manifold action of heat at various degrees upon minerals and organic matter. In the everyday use of heat for the preparation of human food, it is the wise expert application of it that improves or spoils the food for digestion. This is nothing new, and yet the fact involves a knowledge not only of the necessary degree but duration of exposure as well as method of contact. This knowledge may justly be applied to the preparation of cow's milk as a food for infants. As a matter of fact it has been my personal experience to observe that when what is known as the "top milk" is exposed to the action of heat gradually raised, through the interposition of water by means of the "double cooker," to a temperature of from 140° F. to 160° F. for ten minutes' duration, the curd formation which afterward takes place in the infant stomach is considerably modified, as shown in the pukings, being much softer and smaller than from that of the raw milk. When the milk has been previously diluted with plain water, say from equal parts to 1 to 3, the curd was found to be smaller yet and more nearly approaching in character and appearance that of human milk. From these observations it may reasonably be claimed that the effect of heat gradually applied at from 140° F. to 160° F. for an exposure of ten minutes, upon the caseinogen or cheese-producing element of raw cow's milk is to cause some rearrangement of its organic molecules, or, as suggested years ago by Bunge, some new combination of inorganic with organic molecules occurs that prevents its coagulation into such large, dense masses when acted upon by the gastric secretions. That such changes enable the milk to be well digested and assimilated is proven by the subsequent condition of the infant. Healthy growth with firm tissues is maintained and few or no gastro-intestinal symptoms are provoked, Where a tendency to constipation occurs, if not due to overfeeding, some change in the amount of dilution or the duration of exposure to heat suffices to correct it, or else an extra amount of sugar, either in the form of malt extract or the raw cane sugar of the shops, known

as "C" sugar, will do. It rarely happens that the milk is refused by the child on account of the cooked taste, as in boiled milk. On the contrary the taste is not unpalatable and, as Cheadle remarks, if given at the start, the infant knows no other.

It must be recognized at the outset that in order to obtain the best results from the heating of cow's milk for infant feeding, the degree of heat indirectly applied should not be raised to the boiling point. This, in my experience, can be easily regulated by the duration of exposure in the steam cooker, which should not be beyond ten minutes from the time the water in the outer vessel begins to boil. The object in view, namely, the modification of the curd, may be accomplished without reaching the boiling point through the aid of dilution, which when associated with the action of heat produces a curd that can be well digested by the average healthy child, without risk of impairing the antiscorbutic and other vital properties of the milk as in sterilization, while it is entirely adequate, on the authority of Professor Russell, for rendering the milk safe from pathogenic germs.

The observance of these details is of vast importance, for it may readily be perceived that the use of too high a degree of heat in the preparation of cow's milk, even when diluted and otherwise modified by the addition of sugar and salt, as an infant food might eventually do more harm than good.

The advantages of using a correct degree of heat in the preparation of cow's milk will and also do, in the estimation of the writer, easily dispose of the perplexing attempts to regulate the percentage of the proteids without upsetting the percentage of other important ingredients that are vitally necessary to the continued healthy prosperity of the growing child. As to the reduction of the percentage of fats by the dilution mentioned, it is more than likely that it is compensated for in the easy assimilation of the proteids and the addition of the small amount of sugar, according to the well known laws of physiology, so clearly described by Foster.

To recapitulate, it is claimed that the action of heat upon cow's milk when exposed for ten minutes to a gradual rise from 140° F. to 160° F. does not coagulate the albumins nor nucleins neither does it decompose the fats nor render the calcium salts insoluble. It does, however, destroy or inhibit the growth of 99 per cent. of the vegetating germs found in the milk and it

does modify or alter the curdling of the caseinogen to the extent of approaching nearer to that of the curd of human milk. This action of heat upon the digestibility of casein is increased by dilution with plain water and possibly also by thin gruels made from cereals.

Strenuous objections may possibly be offered to the views herein set forth, as they do not profess to be in harmony with the present theory of imitating human milk from a so-called scientific basis. The method may possibly be called "rule of thumb," and the accusation made that it is not in the line of progress. Neither do the observations as to the digestibility of heated cow's milk agree with those of other authorities. Nevertheless, the claim submitted is based upon the careful observations of actual results and not upon any mere theory or laboratory experiment. The experience of the writer enables the emphatic assertion to be made that cow's milk prepared according to the manner here stated not only caused infants fed upon it as a daily food to thrive, but that the same results were accomplished in numerous instances where other artificial foods, including home modification or percentage feeding, had previously markedly failed.

Treatment of Tetanus.

Dr. F. A. Packard stated that the only cases of tetanus he had seen recover were those treated by injections of carbolic acid, every case treated by antitoxin having died. Twenty-five grains of the drug may be given in twenty-four hours with no symptoms of poisoning. Whether or not it possesses a specific action against the toxins of tetanus, he is convinced that its use is the one way of curing tetanus if cure be possible. Dr. Packard uses vaccine shields and believes that they do harm only when so tight as to obstruct the circulation of blood or lymph. All the very sore arms under his observation were those on which he had used a gauze dressing, it seeming to act as a mechanical irritant. The shield is to be preferred if it be removed at the end of forty-eight hours.—*Med. News.*

HYGIENE OF THE MOUTH.

By S. L. Goldsmith, A.M., D.D.S.,
New York.

GOOD digestion is one of the first and most fundamental factors upon which good health is based. To be properly digested the food must be introduced into the stomach in a thoroughly comminuted state, and without good teeth this is impossible.

Do the people of to-day understand how to take care of their own teeth or the teeth of their children? In the opinion of the writer the majority do not, and it will be his endeavor in this article to explain what the teeth are, the diseases which attack them and the best means at our disposal to preserve them.

THE TEETH.

Every individual is endowed by nature with two sets of teeth, the first or temporary and the second or permanent.

The first teeth, called by various writers, "deciduous," "milk" and "temporary," make their appearance from about the twenty-second week to the thirtieth month and are twenty in number, five on each side of each jaw, viz., one central incisor, one lateral incisor, one cuspid and two molars.

The permanent teeth, with the exception of the third molars, make their appearance from about the sixth to the twelfth year. The third molars erupt from the fifteenth to the thirty-fifth year and are known as the *dentes sapientiæ*, or wisdom teeth, because of their eruption at an age when education is supposed to have been completed. This set consists of thirty-two teeth, eight on each side of each jaw, viz., one central incisor, one lateral incisor, one cuspid or canine, two bicuspids and three molars. The first of the permanent teeth to appear are the "sixth year molars," and as their name indicates, they erupt about the sixth year. These teeth, coming in as they do back of all the temporary teeth and without the child having lost any of its first teeth, are frequently unnoticed and are often lost through neglect, because parents labor under the impression that they are part of the temporary set. The upper cuspids are often called "eye-teeth" from their position in the arch.

The teeth themselves, both the temporary and permanent, are made up of consecutive layers, as is shown in the following cross-section of a cuspid tooth and also by cross-sections of the teeth of one side of the permanent set.

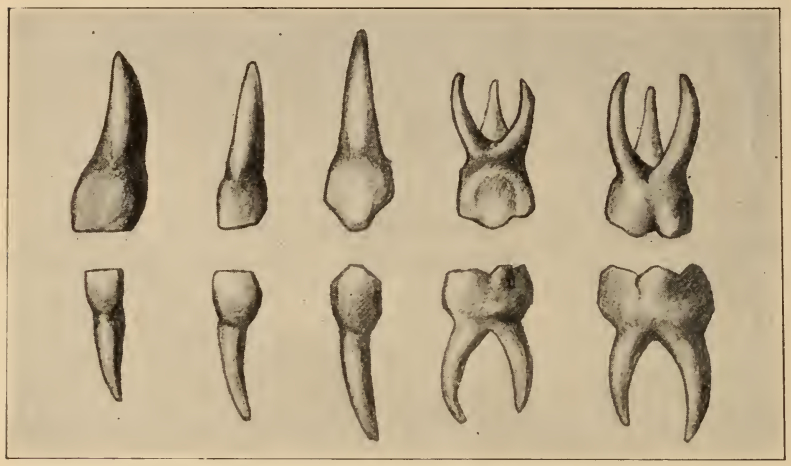

FIG. 1. The Left Side of the Temporary Set.

That part of the tooth projecting into the mouth cavity is called the crown and the part held in the jaw bone, the root or fang. This, of course, has allusion only to healthy teeth, as in some diseased conditions the roots are more or less denuded of bone and project into the oral cavity.

The outer layer of the crown is the enamel (Fig. 3—A) and is the hardest tissue in the body. It extends only a little beyond the edge of the gum, and is replaced on the root by the cementum or crusta petrosa (Fig. 3—B). The next layer is the dentine (Fig. 3—C) and it makes up the bulk of the tooth, containing within itself a cavity which is filled by the pulp, often called nerve (Fig. 3 —D) of the tooth. There is still another layer which, while not a part of the tooth itself, adheres to it when the tooth is extracted. This is a very vascular, fibrous membrane which envelopes the root and is called the pericementum.

Ramifying from the pulp through the dentine are numerous microscopic tubules which, while they have never been demonstrated to contain nerve tissue, nevertheless convey sensation. It is the cutting of these tubules that is accountable for most of the pain of the dental chair.

FIG. 2. The Right Side of the Permanent Set.

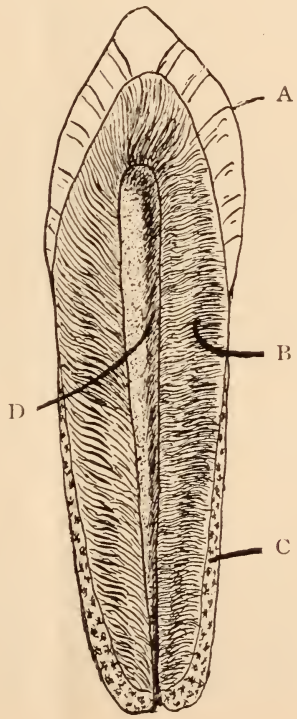

FIG. 3. Cross Section of a Cuspid Tooth.

It will be seen that the anatomy of the temporary teeth, with very slight differences, is the same as that of the corresponding teeth of the permanent set. This may seem strange to many, as they only see the baby teeth after they have been shed. While the second set is being formed the roots of the deciduous teeth are being absorbed, so that when a tooth is about to erupt its predecessor is ready to drop out. Sometimes through one cause or another the root of a temporary tooth is not absorbed at the proper time, and in consequence the tooth which is to replace it appears in an improper position.

FIG. 4. Cross Section of the Teeth of One Side of the Permanent Set.

DISEASES OF THE TEETH AND SURROUNDING TISSUE.

Diseases of the teeth may be divided into two classes: Firstly, those which attack the teeth themselves, causing cavities and attendant troubles. Secondly, those which attack the alveoli or sockets of the teeth, thus producing "loose teeth."

What is the cause of caries or decay of the teeth? Many theories have been advanced upon this subject, but since the investigations of Miller, Williams and Black, names well known to the dental profession, the present accepted theory is practically beyond question. The theory which we accept today is that decay depends upon bacteriological influences subject to individual environment. To elucidate: The mouth continually contains innumerable bacteria which are ever ready to obtain lodgment upon some vulnerable point of the enamel or in some piece of fermenting food. As soon as the first inroad into the enamel is made the bacteria of themselves produce an acid which eats further into the tooth. Thus we see how important it is to thoroughly brush the teeth after eating. When the process of decay has reached the dentine it is much more

rapid, as the bacteria soon find their way into the microscopic tubules before mentioned. The decay now continues until the pulp (nerve) of the tooth is exposed, the irritation then sets up an inflammation of the pulp and a "jumping toothache" is the result. After an indefinite time the pulp finally succumbs, dies, and then commences to decompose. The gases of decomposition, together with the bacteria ever present, pass through the end of the root and an inflammation of the pericementum is the result. Unless the dead nerve is removed, the root canals sterilized and proper treatment applied to the gums an abscess supervenes, causing the face to swell until the abscess discharges, either spontaneously or through surgical interference. In the absence of proper treatment a chronic abscess develops whiah may result in necrosis of the jaw. It is indeed fortunate that necrosis is a relatively rare result of abscess, although there is absolutely no assurance that it may not develop in any particular case. Another trouble which resembles decay in some of its characteristics is what is known as erosion. This disease is manifested by shallow cup-shaped cavities more frequently on the buccal surfaces, usually presenting a highly polished surface. They are found in mouths whose reaction is nearly always acid.

DISEASES OF THE SOCKETS.

A disease through whose ravages many teeth are lost is one which attacks the sockets or alveoli and by removing their support causes exfoliation of the teeth. Among the various terms applied to this disease by different writers are pyorrhea alveolaris, Riggs' disease, alveolitis, phagedenic pericementis, etc. The term most generally used, however, is pyorrhea. Pyorrhea may be purely local, having its origin among other causes in accumulation of salivary calculus, commonly called tartar; or it may have its origin in some systemic condition. Cases of pyorrhea require the attention of a competent dentist; all the patient can do is to maintain a condition of absolute asepsis or cleanliness of the mouth. Those cases depending on some diseased condition of another part of the economy require the treatment of the original trouble before the dentist can hope for successful results. Rheumatism, gout, diabetes and Bright's disease are among the most frequent disorders found associated with pyorrhea alveolaris.

PROPHYLAXIS.

Prophylactic or preventive treatment cannot be commenced too soon. From the time of conception the prospective mother should take such food as will tend to nourish all the tissues of the child. For the nourishment of the teeth food rich in lime salts is to be recommended and among these may be mentioned whole wheat bread, cracked wheat, oatmeal, etc. The whiter the bread the less wholesome it is, since the outer part of the wheat, that part containing the lime salts, has been removed. The old idea that lime administered in the form of lime water will be assimilated is a fallacy.

After the birth of the child every effort should be made to nourish it at the breast. While the total abstinence from artificially prepared foods is not insisted upon it must not be forgotten that the exclusive use of proprietary foods predisposes to a scorbutic condition. If it is not possible to feed the child upon human milk the best substitute is cow's milk. As soon as the child begins the use of solid foods those referred to as rich in lime salts should be selected. These, briefly stated, are the important rules of diet to aid the development of the tooth tissue.

The mouths of infants should be cleansed by the nurse by carefully introducing the index finger, around which a piece of clean linen has been wrapped and immersed in a solution made by dissolving a half teaspoonful of boric acid in a half pint of boiled water. The cloth should be dispensed with as early as posssible and a proper brush substituted and used in a manner to be explained later, since the cloth forces particles of food between the teeth. As soon as the child is able to handle the brush it should be instructed in its use and carefully watched to see that the habit is acquired.

Having shown what causes caries, or decay of the teeth, it will be understood how important it is to brush the teeth after eating, and as the secretions of the mouth are more acid at night it will also be seen that the teeth should be brushed before retiring. The majority of toothbrushes upon the market are totally unfit for the use intended. A toothbrush should be made up of irregular tufts of bristles, slightly curved to conform to the contour of the dental arch and converging to a point, and the brush itself be small enough to reach every part of the mouth. In brushing lay the side of the brush against

the teeth, the bristles pointing toward the apices of the roots, and turn the brush toward the cutting surfaces of the teeth. This will cause the bristles to spread out and penetrate the crevices between the teeth, brush the more exposed surfaces, and give the gums a healthy massage. Keep the mouth open, think of what you are doing and be careful to brush the inside as well as the outside of the teeth. Never close the mouth and attempt to save time by brushing the upper and lower together, for neither will receive proper attention, It is a good idea to make it a point to devote three minutes (by the clock) to the operation and see that the back of the wisdom tooth receives a proper cleansing.

Brushing in the manner just described will prevent recession of the gums, whereas brushing transversely will destroy the delicate attachment of the gums and cause a recession which can seldom be restored. The adoption of this method of cleansing in cases where, from improper brushing, the gums have receded, will be found to stop the trouble, although the tissues once lost cannot be replaced. Brushing transversely also has a tendency to wear away the enamel and help to form erosion.

Brushing the teeth with water alone is not sufficient. A tooth powder should be used every time the teeth are brushed. This may seem a bold assertion, but in the opinion of the writer a tooth powder which may be used at all may be used at all times; any powder containing the smallest trace of grit should be discarded.

A good antiseptic antacid mouth wash is also a very good adjunct to the dental toilet, for after properly brushing the teeth some bacteria may still remain in inaccessible places and these the mouth wash will destroy or render innocuous.

In some mouths it is wise to pass waxed dental floss silk between the teeth before brushing them, in fact it can do no harm in any mouth, although some people become so adept in brushing the teeth that they can reach all crevices, and the use except occasionally, of dental floss is almost superfluous. Even though these instructions be carefully carried out salivary calculus (tartar) *will* form to a greater or less degree, and cavities *will* arise in spite of all that one can do.

The services of a dentist should therefore be sought regularly every six months for the purpose of examination. It does not follow that the dentist will find anything to do but he is the best judge as to whether his services are required.

The cavities in children's teeth should be filled as soon as they appear, for the following reasons: To prevent pain; to preserve a proper masticatory surface; to secure retention of the temporary teeth until the proper time for their exfoliation and bring about a proper development of jaw-bone, so that when the permanent teeth appear they will have sufficieut room to erupt in their proper positions. Thus the child will have a regular arch which, it is hoped, by following directions presented in this article, it will be able to retain through life.

Treatment of Pulmonary Tuberculosis in Children by Meat Juice.

Josias (*Journal des Praticiens*, April 6, 1901), has used meat juice in the treatment of various periods of pulmonary tuberculosis in children. The meat is macerated in about one-fourth its weight of water and the juice expressed as thoroughly as possible; by this means 4 or 5 drams of juice is obtained from 4 ounces of meat. The liquid thus obtained is reddish, has not much taste and decomposes in a short time, and for this reason must be freshly prepared when needed. The minimum dose to obtain a result is 4 drams of meat to each 24 pounds of the patient's weight. For a child weighing from 45 to 55 pounds Josias employed the juice from 1 pound of raw beef. In one of his patients who had a slight pulmonary lesion complicated with a profuse tuberculous diarrhea, all the symptoms disappeared, the weight increased and the general health returned to such an extent that he considered a cure had taken place. When the lesions are somewhat advanced, considerable improvement may be expected, but results are less satisfactory. If the lung is much broken down the results are unsatisfactory; the patient's health remains unchanged, but the lesions continue to progress more or less rapidly.—*American Medicine.*

CONGENITAL HEART LESION.*

By Wm. J. Butler, M.D.,
Chicago, Ill.

JOSEPH R., aged 7 years, born after normal labor at full term; mother suffered no acute illness during gestation; no history of rheumatism in either parent; patient was the third of four children. During the first year of life, according to parent, he breathed strangely and from her imitation of it one would judge that the child was dyspneic. Further than this nothing unusual was observed, and this peculiarity of breathing disappeared about the end of the first year. He had no illness until the end of the second year, when he contracted measles. At five years he had diphtheria. His development as to growth, speech, locomotion, etc., has progressed normally; he attends schools, and pursues the usual play of children of his age; parent states that when he runs he gets out of breath. Last spring he developed a cough which seemed to stick to him and on account of which he was brought to Professor Cotton's clinic.

Examination of the case at the time gave the following findings: Head shows nothing abnormal; mentally clear; no irregularities in development of eyes or ears; oral cavity normal; a few pea-sized glands felt in the cervical region, also in the axillæ and groins. Skin of face and mucosæ shows no cyanosis, but over body and limbs is is seen everywhere a fine network of veins.

Thorax shows a rachitic flaring of ribs and a bulging of sternum and ribs on either side between the third and sixth ribs.

Examination of lungs revealed nothing abnormal except a few rhonchi.

Inspection of cardiac area presented the bulging above mentioned, which might have been construed as a rachitic deformity or as produced by an hypertrophied and dilated heart. The apex of heart is seen while child is in the erect position in the fifth interspace, inside and extending to the mammillary

* Read before Chicago Medical Society, October, 16, 1901.

line. Palpation confirms this location of the apex and one feels not only the heart impulse but also a systolic thrill which becomes more pronounced as you proceed toward the base, reaching the maximum in the third interspace over the second rib and in the second interspace close to the sternum.

On percussion the upper border of the heart begins in a relative dullness in the second interspace which becomes absolute on the fourth rib. The right border of the heart is found two fingers' breadth to the right of right sternal border.

On auscultation from apex toward base a loud, rasping systolic murmur is heard obscuring the first sound. This murmur reaches its greatest intensity in the third interspace over the second rib, and in the second interspace to the left of the sternum, coinciding perfectly with the localization of the systolic thrill. The murmur is transmitted in every direction and heard over the back. The second sound is distinctly heard over the entire heart.

Pulse is of low tension and easily compressible but not tardy; pulse rate 83; temperature 98.4° F.

Liver and spleen are not enlarged; no edema or effusion into serous cavities.

Diagnosis—lungs, mild bronchitis; heart, right-sided heart lesion in the way of pulmonary stenosis which is in all probability congenital.

The most interesting feature of the case and the one which would without examination cause doubt as to the diagnosis made is the absence of cyanosis. According to our observations we are convinced that cyanosis is not a necessary factor in the diagnosis of such cases.

It was our fortune to see six congenital heart lesions in the past five years—three at Neusser's clinic in Vienna and three at Cotton's clinic in this city. The three first mentioned cases were all pulmonary stenoses. One of them was intensely cyanotic, another suffered from chronic stasis and presented a a cyanotic icteroid hue. The third was a pale-faced girl of 17 years; the mucosæ were slightly cyanotic. Of the cases seen here, one was a mitral and aortic lesion, the post-mortem examination having been made by Dr. Hektoen and the case reported by Dr. Cotton. The other two, of which this is one, were pulmonary stenoses. The first case was a pale-faced lad of 11 years, who appeared at the clinic two years ago. This boy died later; a post-mortem examination was made by Dr.

LeCount and the clinical diagnosis was confirmed. This case was also reported by Dr. Cotton.

The case here in point is not cyanotic; his blood findings are as follows:

Reds 4,900,000
Whites..... 10,002
Hemoglobin .....75 per cent.

The hemoglobin may seem low, but this is considered a normal blood finding in children of his age. We believe that the same conditions that would regulate cyanosis in left-sided heart lesions would apply probably with lesser force to right-sided heart lesions, namely, the grade of the lesion, competency of the heart and quality of the blood. If the lesion is of mild grade with no patency of the auricular or ventricular septa and the right heart is competent to take care of the slight obstruction we have no reason to expect cyanosis. If the obstruction is marked and a compensatory patency exists in the auricular or ventricular wall, or both, then we may expect cyanosis provided no anemia exists, even though the right ventricle is competent. because under these conditions a mixing of venous and arterial blood might be expected. The left ventricle, on the other hand, might by hypertrophy resist this blood mixing. But in either event cyanosis would be inevitable. However, we do not believe that the absence or presence of cyanosis would permit us to make such a fine differentiation in the grade or accompanying cardiac defects of a pulmonary stenosis, but we suggest these conditions as consistent explanations for the absence of cyanosis in some cases. We believe therefore that in this case, notwithstanding the absence of cyanosis, we have to deal with a pulmonary stenosis because the left ventricle is not enlarged; the right ventricle is enlarged, because we find a systolic thrill which reaches its maximum in the pulmonary area, because we have a loud systolic murmur which reaches its greatest intensity in the pulmonary area. These three signs were uniformly observed in the five cases mentioned, namely, an hypertrophied and dilated right heart; a loud, rasping systolic murmur which could in every instance be heard with the ear removed from the chest from 1 to 18 inches and always an accompanying systolic thrill which localizes itself as the murmur does. The murmur can invariably be heard over any part of the chest wall anteriorly or posteriorly.

DISCUSSION.

Dr. Frank S. Churchill.—Mr. President, I saw this patient at my clinic at the West Side Dispensary some time ago. My service began the first of October, following Dr. Butler's. I saw the boy again last Friday, and after examining him tonight I differ from Dr. Butler in the results of the examinations which I have made, although in most respects I agree with him. But to my ear the greatest intensity of the murmur is heard, not at the third and second interspaees of the left side, but at the fourth interspace on that side. Furthermore, it is transmitted toward and into the axilla and around into the back and heard distinctly at the lower angle of the left scapula. Again, I should say, that there was some hypertrophy of the left ventricle and that the line of dullness one gets on percussion is farther out than that which is obtained under normal conditions. Whether or not the cardiac condition is congenital I do not know. Dr. Butler has been able to obtain a more complete history than I have. The child does not seem to me to be poorly developed. He is 7 years of age; he does not seem to have a congenital heart lesion associated with pulmonary stenosis. I do not know what the weight of the boy is, but I measured him just now in the anteroom and his height is 45 inches, the average height of a child of that age being 47 inches. The parents are both short, consequently the child would naturally be small. The cyanosis is not of so much significance as some say. There is practically no clubbing of the fingers, and the whole development of the child is against the theory of a congenital cardiac lesion, and certainly to my ear the location of the murmur and the line of dullness of the left ventricle are against pulmonary stenosis.

Dr. Frank X. Walls.—Dr. Butler showed me this case a few moments ago in the anteroom and I was able to find, as the doctor has stated, that the child's heart is enlarged to the right and left with the apex beat out of its normal position. On palpation there is a thrill to be felt over the base of the heart towards the left side which is systolic in time. On auscultation there is to be heard a very loud, rough, rasping systolic murmur, just heard over the entire precordial region, perhaps loudest over the sternum, although heard equally well over the entire heart and over the back and lower portion of the ster-

num close to the ensiform cartilage. The murmur there was more open and blowing, not so rough as in the other portions. I should say that the child has a large heart, and from the murmur there one might be lead to believe there was some obstruction to the flow of blood but I would not like to say that there is such an obstruction because I do not think the conditions are definite enough. There is one point that is suggestive in this case and that is the unusually loud, rough, rasping murmur in the absence of many cardiac symptoms. The patient is not cyanotic; he does not labor from any difficulty in breathing; he is not dropsical. We have a child who does not present the phenomena of heart disease with insufficiency. But there is an intense murmur present and that should remind us of the fact that intense murmurs are not indicative of gross lesions of the heart. On the contrary, gross cardiac lesions are frequently accompanied by mild murmurs that are often overlooked, so that the loudness of the murmur does not mean that there is any great difficulty, but may be construed that the effect is minimum and that might explain the absence of symptoms of cardiac disease such as occur in children. The lack of growth or development in many cases is constitutional rather than due to vascular disease, and it may be in this case that the lesion is perhays one of mild stenosis of the pulmonary orifice, not so great as to produce any symptoms such as frequently occur with stenosis, cyanosis and evidences of cardiac insufficiency. The case is interesting, and I am glad to have had the opportunity at examing it.

Dr. Butler, in closing, said that Dr. Churchill's remarks of the theory of a congenital cardiac lesion express what he would like to dispel, that is, not the theory of the occurrence of congenital lesions but rather the signs and symptoms that they produce are decidedly misleading. For that reason I brought forward the point of cyanosis, which we are led to believe is coincident always with a congenital cardiac lesion. We are convinced, as previously noted, that cyanosis is not a constant accompaniment of a congenital cardiac lesion.

As to the left ventricle of the heart being hypertrophied I cannot agree with Dr. Churchill, for reasons which I will mention later. In this case the apex beat is in the fifth interspce inside and extending into the mamillary line. Our observations of a large number of children between six and seven

years of age and beyond puberty show that the apex is frequently found extending to the nipple line and we will not be accustomed in the future to consider such a location abnormal because it is a frequent thing to find the apex beat of a child of this age in the fifth interspace extending to the nipple line. Conceding that that might be an abnormal location the hypertrophied and enlarged right ventricle would be sufficient if the left ventricle was not hypertrophied and dilated, to push it a little bit to the left and displace the apex outward, consequently in either event the position of the apex can be explained by a slight displacement outward, by the enlargement of the right ventricle, or, assuming that it is not abnormal, by the fact that other cases show the presence of the apex in the same location.

As to the murmur, it presents the characteristics of pulmonary stenosis. It is abnormally loud and rasping; it can be heard anywhere in the chest. I have observed this case off and on and have listened to this murmur on several occasions, and it struck me as loudest in the location of the sternum and to the left of the sternum in the third interspace. Concerning the loudness of the murmur, as Dr. Walls expressed it, this has nothing to do with the intensity of the lesion whatever; the murmur is always loud. It has nothing to do with the grade of the lesion; it cannot be estimated from it at all. The general condition of the child as to the severity of the lesion would, perhaps, be more significant than the murmur itself.

Dr. Churchill.—I do not wish to be understood as basing my ideas on the condition of the left ventricle. I am simply going by the outline obtained by percussion and not by the position of the apex beat.

Dr. Butler.—It is generally accepted that the apex indidicates the left limit of the heart in the absence of any previous pericarditis.

Dr. Churchill.—The extreme left apex beat is in the nipple line, and the area of dullness extends right down through, which is farther out than it ought to be in a child of that age.

SOCIETY REPORTS

CHICAGO SOCIETY OF INTERNAL MEDICINE.

Stated Meeting, Nov. 27, 1901.

The President, Dr. Edward F. Wells, in the Chair.

Dr. A. F. Lemke read a paper entitled **Arthritis Deformans in a Child, with General Lymph Gland Enlargement and Splenic Tumor.**

In May, 1900, a boy, 11 years of age, entered Cook County Hospital with a history of an illness dating back to his third year, and a condition principally of the joints and lymph glands that, for a time at least, forced the essayist to suspend judgment as to the diagnosis. The joint involvement alone seemed easily accounted for, but the very marked enlargement of the glands, and particularly those glands associated with the joints most advanced in the disease process, or most acutely involved was not easily explained. The axillary glands were so enlarged as to be visible from a distance and the epitrochlear glands were as large as a hazelnut. This picture of universally enlarged glands made one consider seriously the possibility of a tubercular infection, and with a view of definitely determining this a large gland was removed from the axilla, used to inoculate a guinea pig, and the latter was examined bacteriologically and histologically, as will be described later. The result of this inoculation was negative and therefore the case was considered one of arthritis deformans, as it is occasionally seen in children, associated with lymph-gland enlargement and splenic tumor. The history of this case as obtained at the time of patient's admission to the Cook County Hospital, and as supplemented by his mother, is as follows:

The boy, George M., 11 years old, was admitted to the hospital May 16, 1900, on account of an exacerbation of his illness. At the age of 9 months the child had an attack of scarlet fever; at 2 years an attack of measles.

His present illness dates back to his fourth year, when he had an attack of illness which was diagnosed as cerebro-spinal fever. With this attack he was confined to his bed from sixteen to eighteen weeks. Six months later he developed another attack of what was called cerebro-spinal fever complicated by pneumonia, and was sick in bed three months. Three months later a third attack of the same type of illness, which again kept him confined to bed three months. After these

three attacks he apparently made a complete recovery, although no very definite or accurate information can be obtained relative to the condition of the joints or lymph glands. In his sixth year he had typhoid fever and was ill two or three months. He made a perfect recovery and remained quite well until October 16, 1899, when he suddenly developed an acute rheumatism and was in bed twenty-two weeks. The mother noticed the swelling first in the knees, then the ankles and wrists became involved, and finally, all of the carpal, metacarpal and phalangeal joints showed marked swelling. About three months before his admission to the hospital the cervical spine became affected; he was unable to rotate the head; the joint manifestations had abated somewhat when he entered the hospital; he was unable to walk.

The examination made at the time of his admission to the hospital is as follows: The boy is very pale, poorly developed and emaciated; he lies quietly in bed with his knees flexed; nothing of any importance is found about the head and face; the neck is rigid; rotation of the head is possible only to a very slight degree and is painful. The glands of the neck, both anteriorly and posteriorly, are enlarged so as to be distinctly palpable.

The chest is small, considerably deformed; the shoulders drawn forward; the area of heart dullness is normal and nothing abnormal is to be heard over the heart. The lungs are perfectly resonant, the excursion is normal and no adventitious sounds can be heard.

Abdomen, as a whole, is somewhat prominent; nothing abnormal is to be found other than the enlargement of the spleen, which can be demonstrated by both percussion and palpation. The lower border can be felt at least a finger's breadth below the costal arch during inspiration.

The extremities. The most conspicuous joint involvement is observed in the wrists and hands. The wrist-joints, particularly the carpal joints, are distended with fluid; they are only slightly tender and there is distinct joint crepitus. Crepitation can also be felt along the tendon sheaths as they pass over the wrist. Some of these sheaths appear to be distended with fluid. The metacarpo-phalangeal joints, and to a more marked degree, the proximal interphalangeal joints are swollen, owing to the accumulation of fluid and particular thickening. The elbows and shoulders are also involved, but to a lesser degree. Motion in these joints is fairly well preserved. The knee joints are much enlarged and also slightly distended with fluid. Crepitus is also to be felt over both knees. Complete extension of the legs upon the thighs is impossible, an account of contractures of the flexor muscles rather than of the joint condition proper. There is some slight joint crepitus in both hips and neither complete flexion nor extension of the thigh can be made by reason of the muscular contractures present.

Both ankles are involved to about the same degree as the knees; the smaller joints of the foot show comparatively very much less involvement than is observed in the hands. None of these joints shows any evidence of acute inflammation, such as pain, redness and an increase of local temperature. The most striking joint changes are those produced by thickening of the synovial membrane and ligaments, and an increase of the joint fluid. There are not the marked disturbances of the cartilages and bone usually observed in the ordinary cases of arthritis deformans, so accurately described by Charcot.

The peripheral glands are nearly all enlarged and some groups of them to a marked degree. Those glands associated with the joints showing greatest involvement are the most enlarged. The epitrochlears are relatively the largest. The axillary glands of both sides are enlarged to such an extent that they can be plainly seen when the arm is raised. The glands in the femoral regions and those in the neck are enlarged, but to a somewhat lesser degree. At the time of admission to the hospital, May 16, 1899, the patient's temperature was 101.2°; pulse 40; respiration 28; and during several weeks thereafter the pulse ranged from 96 to 140, and the temperature from 98.6° to 103°; this high temperature being due to an attack of tonsillitis ten days after admission. One month after admission a sputum examination was made but no tubercle bacilli were found and the urine was found normal. On July 16th, two months after admission, some of the glands were removed from the right axilla for diagnostic purposes; these glands varied in size from that of a pea to that of a large almond; their consistency was normal; no caseation anywhere; some of them were preserved in formalin solution for microscopic examination. A small piece of one of the glands was inserted beneath the skin of the back of a guinea pig weighing 405 grams. On August 29th a microscopic examination of the lymph glands is reported as follows: Simple hyperplasia; no giant cells, areas of necrosis, nor other evidences of tuberculous infection. On August 31st the guinea pig was killed and examined and found to be absolutely healthy; no evidence of either general or local disease.

The general condition of the patient after the ordinary tonic treatment gradually improved, so that he was able to leave his bed and wheel himself about in a chair, but the condition of the joints, glands and spleen remained about the same, with the one exception that motion of the head was less painful. The blood state had also considerably improved; on July 20th his blood-count showed 11,400 leucocytes; 4,000,000 red cells and 30 per cent. hemoglobin. Shortly before his discharge the hemoglobin was estimated at 55 per cent. He was discharged September 22, 1900, and not seen again until Nov. 1, 1901, when an examination revealed almost identically the same condition described above, except that the axillary lymph glands on the left side were slightly smaller.

The course that the disease in this case has taken and the negative results of an attempt to prove the gland involvement tubercular warrant the essayist in grouping the case with nineteen or twenty others seen and described by George F. Still.

DISCUSSION.

Dr. Frank X. Walls.—I have had the pleasure of seeing one typical case of arthritis deformans in a child two years of age, that closely followed an attack of measles. In that case the smaller joints were particularly involved, as were those of the hands and feet. The involvement of the joints was quite symmetrical. The case was under my observation for a little over a year, and during that time there seemed to be no change in the course of the disease except that there were sometimes slight remissions and again a little improvement. The disease persisted from that time without any marked change, that is, it did not respond to either the anti-rheumatic or tonic treatment. There was a general enlargement of the glands, but not to the extent mentioned in the case detailed by Doctor Lemke.

I saw another case in which the deformity was not so universal; there were not so many joints involved. The case followed scarlet fever. In that case the larger joints, the two elbows and one shoulder, were implicated in the condition of deforming arthritis.

Another case I saw was one in which the joints, particularly of the spine, were involved. This case closely followed a gonorrhea.

The cases I have seen seem to point to a group of complications following the different infectious diseases we meet with, particularly in children, a group of joint lesions that might be considered to be post-infectious, and the classification suggested by Dr. Lemke of dividing the arthritic manifestations into four groups, it seems to me, would not stand very long, because the classification is purely one on clinical grounds, and until we can establish a classification on causative factors there would be very little gained by stating that this case or that case is one with or without heart involvement, or a type of case in which the greater joints were involved with greater frequency. The occurrence of these cases with glandular enlargement would be in keeping with the general glandular enlargement we find in children recovering from infectious diseases and should not suggest tuberculosis any more than intestinal infection. I was particularly interested in the case narrated by the essayist, and I think it is most unusual, in that the arthritic deformities are more marked than in the cases which I have had the opportunity to witness. I rather think the classification, as I have suggested before, can only be made on etiological grounds, and we might look upon

these cases as due to some form of intoxication following infection; perhaps some special infection might have been present in this case.

Dr. Edward H. Ochsner.—I am very much interested in the subject of arthritis deformans, and I desire to report a case that was under my observation for at least four and a half years. In this case the etiology is very plain. A young lady developed arthritis deformans slowly. She began to be ill in 1893. She came under my care in 1897, when almost every joint in the body was involved. She was so crippled that she could not walk and could not feed herself. She was absolutely helpless; her weight when she came under my care was 87 pounds. Having been taught that these joint affections (gonorrheal rheumatism, ordinary acute articular rheumatism, peliosis rheumatica, scurvy and the like) are presumably all caused by infection, I immediately thought that possibly this case might be caused by an infection, or, that at least the cause of the disease might be discovered. I knew very well that the only hope the young woman could have in regard to the amelioration of her suffering, which was extreme, could be obtained possibly through the avenue of determining the cause. She was evidently being constantly reinfected, which caused constant pain in almost every joint of the body; even the temporomaxillary joint was involved so that she could hardly eat. The young lady was doomed. It was difficult to find out the cause of the constant autointoxication as I considered it. I repeatedly asked her and members of her family about the various functions of the body, but was unable to determine anything abnormal until she was under my care for about six months, when she confided to me that she was suffering from hemorrhoids to an extreme degree and sometimes her bowels would not move far a week or ten pays. I immediately advised an operation for the relief of the hemorrhoids, which was consented to, and I was surprised at the condition which the lower bowel was in. I have never seen such an accumulation of absolutely foul fecal matter. We had given her a strong cathartic, yet in spite of it the fecal matter was putty-like and the state of decomposition was bad. The sphincters were thoroughly stretched and the hemorrhoids were removed; the woman, so far as the acute symptoms were concerned, has absolutely recovered. It has been necessary to break up several joints and to put the legs in a straight position. But the acute symptoms have subsided; she has no more pain; she is able to walk, and has gained 53 pounds in weight.

It seems to me in this case the cause of the arthritis deformans was constant autointoxication, and that if in her case the nature of the trouble had been determined two or three years earlier than it was, the woman might have been saved from the calamity in which she has fallen.

Dr. Wells.—Was there any enlargement of the lymphatic glands in your case?

Dr. Ochsner.—No, sir.

Dr. Wells.—Was the spleen enlarged?

Dr. Ochsner.—Yes; also the liver.

Dr. Robert B. Preble.—I really have not much to say in regard to Dr. Lemke's case although I saw it many times, and also had the pleasure of seeing one of the cases mentioned by Dr. Wells. A phase of the condition which has always seemed to me particularly interesting from a theoretical standpoint is with reference to the etiology of the disease. Without making any effort at a classification, while we use the term arthritis deformans in describing a great many of these cases, I believe that as our knowledge of these conditions increases, we will have to subdivide the cases; we undoubtedly throw under the name arthritis deformans a great many separate and distinct conditions. But for the present, at least, the term arthritis deformans is perfectly legitimate; but at the same time we ought to keep more clearly in mind that under that name we have a great many different and distinct conditions.

So far as the etiology of the disease is concerned there are three conspicuous theories. One of the theories is that of infection, and while I am perfectly aware that numerous observers have found in the joints fluids and bacteria of various sorts, I am not inclined to believe that all the cases are due to infection. My objection to such a theory is mainly this, that one of the particular characteristics of this group of cases is the fact that the joint involvements are symmetrical, which is perhaps truer in adult cases than in those which we observe in children. But it is nevertheless one of the conspicuous clinical features that the joint involvement is symmetrical. It is difficult to see how infection can bring about symmetrical distribution. If it were altogether a heterogenous distribution then I would perhaps say that it was an infection. But I do not know of any infective process which is known to us now which gives rise to symmetrical involvement. We do know of instances of both the other theories. We know of a symmetrical process resulting from intoxication and which results from nervous disturbances. Naturally the toxic theory occurs to one because we know that certain general manifestations are due to intoxications, and even today there are people who believe that articular rheumatism is an intoxication. Many others doubt it. We have numerous instances of intoxications which affect the bones and joints; and we have instances of other infections which distribute their effects symmetrically. Take, for example, phosphorus. It is known how it may involve

bones and joints. For example, we know that with alcohol or with lead, or with many of the bacterial toxins, their distribution is symmetrical. Take the multiple neuritis of alcohol or of lead, and we can readily imagine that the cause of this group of diseases may be some form of intoxication, either extrinsic intoxication or autointoxication of some sort, perhaps intestinal intoxication, such as in the case related to us by Dr. Ochsner. There are other instances which suggest to one that the disease is neuritic in its origin. The fact was impressed upon me particularly by a case which I reported with hip joint involvement some months ago, a case in which we found almost from birth that there had been involvement of the entire peripheral nervous system in the way of multiple neuromata. This patient presented, both clinically and at the autopsy, hundreds of tumors in connection with all the nerves, the cerebrospinal axis and many of the sympathetic nerves. The patient presented to us an extremely well marked example of arthritis deformans. The joint changes which he presented were in no wise different from those which we ordinarily speak of as typical of arthritis deformans. The coincidence in one patient of the multiple neuromata and arthritis deformans suggested naturally that the two processes were related; that one perhaps was the cause of the other. The changes in the nerves preceded the joint changes a number of years, some twelve or fifteen years. Why these tumors should present before the joints were involved we do not know. The case of Dr. Lemke presents many features which suggest that it is an infection, particularly the temperature and the enlargement of the spleen. These two features would suggest its infective origin. It seems to me the most interesting part of the subject is the discussion of the theory of how this disease may come about and I really believe the probabilities are more in favor of its being an intoxication than an infection.

Dr. J. Rawson Pennington said that arthritis deformans is sometimes associated with rectal ulceration. Wallis, Cave and others have reported such cases. He detailed two cases occurring in women. The first was forty-four years of age, her ailment having begun in April, 1893. In 1895 she lost the sense of smell; in 1897 she entered Cochin Hospital, Paris, where she remained twenty-three months; continuing to grow worse she returned home two years ago, and for the last fourteen months has not been out of her bed. On examination he found ankylosis of the shoulders, elbows, wrists and fingers, hips, knees and ankles, and that the cartilage of the nose and auricles of the ears were stiff and painful to the touch. October 18th he began giving her hypodermic injections of 8 minims each of a preparation containing atropine sulphate, 1-5400 gr.; iron sulphate, 1-1080 gr.; strychnine sulphate, 1-900 gr.; gold and sodium chloride, 1-40 gr., and embryonal cell prod-

ucts extracted from the lymphatic glands and testicles of an animal. Since beginning treatment her sense of smell had returned; the cartilage of the nose and auricles of the ears had become normal; that the improvement in the smaller joints and her general health was remarkable.

In the second case he said there was ankylosis of all joints of the limbs; that the patient was unable to move in any direction. Treatment was begun in June last. She now sews, feeds herself and moves about with crutches. He read a letter from Dr. G. Frank Lydston, who had examined the patient, in which it was stated that the cause was one of severe arthritis deformans; that while he had no conclusions to offer in regard to such cases in general, the improvement in this one case was wonderful.

Dr. Edward F. Wells.—The essayist has presented to the society an excellent report of a case of a specific disease *sui generis*. Dr. Still, whom the author of the paper mentioned, has reported similar cases, and I do not think Dr. Lemke's excellent paper should be loaded down with discussions regarding cases of arthritis deformans of different kinds, because it is undoubtedly a different disease. With these remarks I will ask Dr. Lemke to close the discussion.

Dr. Lemke (closing the discussion).—In reference to the great variety of cases of arthritis deformans, I will say that that there are a great many cases of the disease in a purely anatomical sense that are due to various causes. Many of the cases of post-scarlatinal arthritides, to which Dr. Walls referred, undoubtedly occur, but I do not believe they belong to the type of disease I have described. Still mentions the fact that very few of his cases seem to have followed any of the acute infectious diseases. Most of them began slowly and insidiously without being preceded by any acute infectious disease. When we take into consideration such cases as have been reported by Drs. Pennington and Ochsner, we must bear in mind that they are cases of arthritis deformans purely in an anatomical sense of joint involvement, and do not belong to this type of the disease at all.

With reference to the remarks of Dr. Preble, one thought occurred to me in regard to the invasion of the joints in cases of arthritis deformans, at least in the anatomical sense, namely that the joints are involved in certain nervous diseases. Dr. Preble seems to think that where the joint deformity is due to a nerve lesion the involvement ought to be symmetrical. For instance, Charcot's joint is nervous in origin, and I take it, that in most cases of Charcot's joint only one, perhaps, sometimes two joints are involved. The invasion is not symmetrical. We are just as apt to have the knee and hip involved; we are more apt to have only one joint involved in connection

with Charcot's joint disease, as well as in connection with the joint manifestations which we get in cases of syringomyelia, which gives rise to a joint deformity involving the cervical spine. It does not occur to me therefore that in purely nervous cases of arthritis deformans the invasion is symmetrical.

Most of the gentlemen who have discussed my paper forgot for the time being that I had directed attention to a description of this particular type of disease without stopping to consider the etiology of arthritis deformans in the anatomical sense, so far as the joint changes are concerned. The joint changes differ very materially from those observed in typical cases, such as I have described tonight. Possibly true arthritis deformans, as described by Charcot, is not an infectious disease. Reasoning from analogy, the case I have described and those that have been described by Still, are undoubtediy instances of the same type of infection in which the infection gave rise to the changes I have described.

Antitoxin in Diphtheria.

It is said that an increase of fully one-third in the number of deaths from diphtheria in proportion to the number of cases reported has been noted the past two weeks. The medical inspectors of the Department of Health report a distrust of the use of antitoxin, both by physicians and parents, which fully accounts for this result. Such distrust is, in the judgment of Commissioner Reynolds, of Chicago, wholly unwarrantable. He says: "Probably never before in the history of antitoxin has this specific for diphtheria been so safe to use. The deplorable results in a neighboring city furnish no criterion of the method of antitoxin production in general, and the fact that more than 140,000 injections of the remedy were distributed by this department during the past six years without a single such result should reassure those who have been needlessly alarmed." —*Med. News*, Nov. 20, 1901.

BOOK REVIEWS

GOLDEN RULES FOR DISEASES OF CHILDREN.—By George Carpenter, M.D., London, M.R.C.P., Physician to the Evelina Hospital for Sick Children; Author of "Congenital Affections of the Heart;" "Syphilis of Children in Every-day Practice." John Wright & Co., Bristol. Simpkin, Marshall, Hamilton, Kent & Co. (Limited), London.

It is but seldom that we care to recommend a "quiz-compend" or similar short cut to knowledge to our readers; this little vest-pocket volume of 101 pages proves an exception, however. Its contents are modern, profound and concise. It may prove of value even to those who rest content with their knowledge of the principles of pediatric practice. We quote the very brief remarks on catarrhal laryngitis and summer diarrhea:

"*Catarrhal Laryngitis.*—Remember this differs from catarrhal spasm by the fact that laryngitis is a pronounced feature, as evidenced by a raucous voice, brassy cough and stridulous inspiration.

"Bear in mind the clinical difficulty, in the absence of membrane in the throat, of separating this disease from membranous laryngitis. The child should therefore be isolated as a precautionary measure. Take a swab from the throat and glottis and search for the D. bacillus. Examine the urine for albumin and test the patellar reflexes. If in spite of steam inhalations the condition of the larynx becomes steadily worse, do not wait for bacteriological confirmation, but at once give antitoxin.

"Primary membranous laryngitis is almost certainly diphtheritic; it is only in early association with measles and scarlet fever that the membrane is probably of coccal origin.

"Remember the indications for intubation are pallor, prostration, a rising temperature and increasing dyspnea, as evidenced by falling in of the episternal and epigastric fossæ, and recession of the interspaces. Do not wait until the child becomes cyanosed. If intubation fails tracheotomy may be performed."

"*Summer Diarrhea (acute gastroenteric infection and cholera infantum).*—Always treat infantile dyspepsia with respect, especially in the summer months, and prescribe a suitable dietary. Always disinfect soiled napkins in the summer.

1.—Do not over-feed; quench the thirst with cold water.

2.—Take especial care to prevent milk infection.

3.—Send the infant to the country if possible.

The principles of treatment are:—

"1.—Clear the bowels as quickly as possible, by stomach washing, colon irrigation and small, frequently repeated doses of calomel.

"2.—Starve for twenty-four hours, give ice-water with brandy if necessary.

"3.—When the acute symptoms have passed, give egg albumen, water, and subsequently beef juice.

"4.—Withhold cow's milk until the third or fourth day and then commence with .5 per cent. fat and .5 per cent. proteids, gradually increasing the strength.

In cholera infantum give hypodermic injections of morphine gr. 1-100 and atropine gr. 1-800 hourly if necessary, as a cardiac stimulant. If there is drowsiness and coma give alcohol instead. Replace the fiuid lost by subcutaneous saline injections, gr. 45 ad Oj in the twenty-four hours." T.

A Text-Book of Medicine for Students and Practitioners.—By Dr. Adolf Strümpell, Professor and Director of the Medical Clinic of the University of Erlangen. Third American edition; translated by permission from the thirteenth German edition, by Herman F. Vickery, A.B., M.D., Instructor in Clinical Medicine, Harvard University, etc.; and Philip Coombs Knapp, A.M., M.D., ex-President of the American Neurological Association, Clinical Instructor in Diseases of the Nervous System, Harvard University, etc.; 8vo; pp. xii, and 242. D. Appleton & Co. New York. 1901.

The work of Professor Strümpell is too favorably known for us to undertake to enter into an exhaustive review of this, the third American, translated from the thirteenth German edition. Translations of the book have appeared also in French, Italian, Spanish, Modern Greek, Turkish and Japanese, and some of these translations have themselves had several editions. In the preface of the thirteenth German edition the author says that he has endeavored, so far as possible, to keep the work abreast of the rapid advancement of medical thought. That he has succeeded need hardly be stated. Many of the sections have been entirely rewritten. Of especial value for the student and general practitioner is the section on gastric diseases which commences with a very practical chapter on the examination of gastric contents. As instances of the thorough manner in which the work has been brought up to date by the author and translators, we find mention of Widal's reaction, the antitoxin treatment of diphtheria, Koplik's spots in measles, the transmission of malaria and yellow fever by mosquitoes and the recent views in regard to the septic origin of acute articular rheumatism. T.

PRACTICAL NOTES

Artificial Milks.

Louis Koplinski (*Medical News*) says that in composing an artificial milk the following conditions were considered: That it should approximately represent all of the component parts of the animal secretion. That the percentages of salts and of water are of vital importance. That the product should be cheap and readily and rapidly prepared. That the ingredients should be easily obtained. That they should be fresh and sterile and that the mixture be palatable. These requisites are fulfilled in the following general formula: Extract of malt (sirupy), one tablespoonful; olive oil, one tablespoonful; roasted flour, two teaspoonfuls; one broken raw egg. Beat up in a bowl or dish with a spoon or eggbeater for three or four minutes. Add by degrees while stirring a tumbler or goblet-ful of pure cold drinking water. Season with tablesalt. To be taken one or two hours after meals. In hot weather add crushed ice or prepare the whole in a "milk-shaker."

As is apparent, the extract of malt is used to emulsify the oil and for its diastatic effect upon the flour. The malt should be of thick consistency. The olive oil represents the fat of milk. The egg, the albuminoids, fat and salts of the natural fluid. The tablesalt is added for its digestive effect and to improve the taste of the compound. The roasted flour after conversion into dextrine and maltose replaces the lactose of milk. The proportion of water is necessary for proper digestion and ready absorption.

This general formula is varied and modified in numerous ways, according to the circumstances and indications of any particular case. The flour may be increased in amount or diminished or omitted. Increased for its soothing effect in intestinal disease, dispensed with where a carbohydrate is not indicated. The olive oil may be replaced by any other fixed oil or fat. Of the former class cod-liver oil deserves particular mention. Not alone for its great therapeutic-dietetic value, but because it has been found that thus administered it is very

readily taken and that the great heat spells of summer are not at all an objection to its persistent use. Other more or less eligible substitutes for olive oil are the fixed oils of cottonseed, rapeseed, sweet almonds, poppyseed and peanut.

Of fats, unsalted butter and chocolate, a heaping teaspoonful of the first and two heaping teaspoonfuls of the second, will be found useful. In a chocolate milk, of course, the roasted flour is needless. The chocolate should be grated or in a fine powder form.

The flavor of these artificial milks is rich and the after-taste pleasant. They produce the agreeable, general sensation of normal digestion. They are restoratives for minor forms of temporary exhaustion, muscular or mental. They produce feelings of composure and confidence. The subject's mind and manner, nerve and decision are at their best, and mother's milk can be replaced by the artificial milks in infant feeding.

Methylene Blue in Otitis.

According to Prof. H. Gaudier, instillations of a warm solution of methylene blue (medicinal) into the auditory canal render excellent service in the treatment of certain chronic forms of otitis media, especially in fetid otorrhea of children. The method employed is as follows:

After having cleansed the canal by means of a warm soap and water injection, the patient turns his head to one side, and 15 to 20 drops of the solution mentioned above are instilled into the ear. This procedure lasts five minutes and during this time the patient performs the maneuver of Valsalva; that is, he makes a forced expiratory movement, while keeping nose and mouth closed. Air is thus forced into the ear and the methylene blue passes from the canal into the tympanic cavity. Nine old cases, with perforation of the tympanum, treated in this manner, showed marked improvement. The deodorizing properties of methylene blue render it superior to other antiseptics, and the purulent discharge diminished under the influence of the remedy more rapidly than under any other treatment.

In ordering methylene blue, emphasis should be laid upon getting a pure medicinal article, as there is a dye on the market of the same name.—*Merck's Archives.*

ABSTRACTS

A NOTE ON THE LITTLE FINGER OF THE MONGOLIAN IDIOT AND OF NORMAL CHILDREN.

J. Park West (*Arch. of Ped.*, Sept., 1901) reports as follows: He has within the past two years examined the little fingers of 605 children under twelve years of age, 296 being males and 309 females. These were children (with the exception of about 30 seen at a school) he had occasion or could make occasion to see in any way, and a number were seen several times. They were the ordinary children of an industrial community made up chiefly of American-born, with a few Bohemians, Russians, Germans, Italians and French. None were excluded except a few feeble-minded, a few with rheumatism, marked rachitis or deformities, and, after 50 for each year had been obtained, no more for that period were examined. Before the examination had proceeded far it became evident that four varieties of little fingers existed in normal children, and for convenience they were recorded as follows, viz.: (1) Straight; (2) slight curve; (3) distinct curve; (4) marked curve. Of the 605 children, 112, or 18.5 per cent., had straight little fingers; 175, or 28.9 per cent., a slight curve; 199, or 32.9 per cent., a distinct curve; and 119, or 19,6 per cent., a marked curve.

The curving or bowing in this last class corresponds in degree to that shown in the photographs of the idiots of the Mongol type, published by Dr. Smith.

A few children showing the marked curve to the naked eye do not show the anatomical condition distinctly to the fluoroscope; but some in the third class, those with a distinct but not so marked curve, also show the short middle and more or less displaced distal phalanx.

It was not unusual to find the children of a family showing quite different degrees of curving in the little fingers, and 51 of the 605, or about 8 per cent., showed a different amount of bending in these two fingers without previous disease or injury to account for it. In a small number, probably 2 per cent., there was a distinct curve in the ring finger. Five pairs of twins were seen and only one pair had fingers alike.

Close examination for stigmata of degeneration was seldom made, but his impression is that they were not present oftener in the third and fourth classes than in the other two. From his knowledge of quite a number and from inquiries about others he believes the mental capacity of the four classes is about the same. Four children under two years of age with the markedly curved little fingers have been watched from birth. The mental and physical development of all has been fully up to to the average, and in three of them there has been an increase of the curving.

He has seen but 9 Mongolian imbeciles within the past four years. Only one had such a bowing in the little fingers. Two others had a less marked curving that was apparently due to the anatomical peculiarity

mentioned. Three had very slight curving and two had straight little fingers. One, nine months old, seen for the first time ten days ago, had the right little finger straight and the left somewhat curved, and it is likely this will increase as the child grows older. Of the two seen at birth one had straight little fingers, the other a very slight bend at the distal phalangeal joint that had almost disappeared before his death, seven months later. A conclusion cannot be based on these few cases, but there is a striking similarity in them and in the normal children.

SCARLATINAL NEPHRITIS.

A. Babinsky (*Klin. therap. Woch.*, Oct. 27, 1901) writes: The anatomical changes in the kidneys during the first week of scarlatinal nephritis consist in a circumscribed or more diffuse cellular infiltration. In the second week there is besides this degeneration of the epithelial cells of the straight and convoluted tubules with occasional embolic foci of necrosis. It is only in the third week, according to the author, that marked changes are noted in the Malpighian capsules and glomeruli. The important clinical symptoms are:

1. Fever; this may still be due to the scarlatina or one of its complications. Sometimes it is entirely absent and even fatal uremia may occur without any rise. In most cases, however, there is a gradual or a more sudden rise up to 39 or 39.5° C. The most dangerous forms are those with highest fever. Finally, there is a group of cases in which every exacerbation of the nephritis is marked by a new rise.

2. Pulse; generally there is no definite relationship between this and the fever, The wiry condition of the pulse in uremia is peculiar.

3. Amount of urine; in typical cases this is diminished, yet there may be normal quantities of normal specific gravity voided, and anuria with a fatal issue may set in suddenly; or there may be polyuria up to 2.000 c.c. in children from six to eight years.

4. Foreign elements in the urine; cases with large amounts of albumen are the most dangerous; when the urine contains hemoglobin and has a dirty, coffee-brown color, the outlook is serious, yet cases with over 4 pro mil. albumen have been cured.

5. Hydrops; in its mildest form this manifests itself in edema of the eyelids. More marked edemas of the skin and effusions into the serous membranes considerably influence the prognosis and are apt to be com plicated with bronchitis and pneumonia. Only in cases which come to treatment during the first five days can prophylactic measures be taken.

6. Uremia; with this there may be arhythmia and a wiry pulse, delirium, crying spells, aphasia and singultus. The amount of urine is sub ject to considerable variation; there may be anuria or polyuria.

Very often the mildest cases are followed by the severest attacks of uremia, but in most cases, however, the outlook is fair. Of 88 cases of nephritis under observation the author lost 11, and of these, 3 were complicated by other disorders. In 18, however, a chronic albuminuria remained, which in 5 developed later into chronic nephritis. The most careful prophylaxis and most painstaking therapy are unable to prevent

the appearance of nephritis, but will do much to ward off the hydrops, uremia and subsequent chronic nephritis. The patients must remain in bed four weeks; during the first two only milk is to be given and during the last two a solely vegetable diet. It is best not to give any drugs at all and only to administer tannic acid in prolonged albuminuria or hematuria. Diuretics are only to be employed in the form of alkaline waters. The uremia is combatted by means of venesection, sweating, chloral and chloroform. For chronic albuminuria, a change of climate is indicated.—*The Medical News.*

THE INCOMES OF PHYSICIANS.

Dr. A. K. Steele, in a paper read before the Chicago Medical Society, states that there is an unusual amount of ignorance both on the part of the public and of the profession regarding the incomes of physicians. Professional incomes are greatly overestimated. The income of the average physician in Chicago varies from $1,500 to $3,000 per annum; office specialists—eye and ear, nose and throat—average $3,000 to $6,000; consulting physicians, $5,000 to $15,000; six leading physicians, $15,000 to $35.000; six leading surgeons, $20,000 to $60,000; six leading gynecologists, $10,000 to $20,000; six leading office specialists, $10,000 to $15,000; average surgeons, $3,000 to $10,000. The practitioners in Chicago whose income from practice exceeds $30.000 per annum can be counted on the fingers of one hand, and probably not more than a score exceed $20,000 per annum. The $2 to $3 visit, the $5 to $25 consultation, the $18 to $30 case of obstetrics, and the larger fees provided for operative work do not insure large incomes for many in the profession. The expenses of a physician keep pace with his increasing business, so that the opportunity for accumulating wealth is not easy.—*Courier of Medicine.*

REMARKS ON INFANTILE SCURVY.

J. McCaw (*Brit. Med. Jour.*, Nov. 2, 1901) says that in most of these cases the diagnosis is not hard to make, but where the classical symptoms are wanting or only one is present it may be safe to give some definite answer if asked for a diagnosis, and refers to a case which was brought to him; the child had been fed upon condensed milk and patent cereals for ten months. The baby had vomited blood, and there was a slight diarrhea in which there was altered blood. There was complete absence of other symptoms. Orange juice, 1 dram every two hours; small quantities of whey and cream at varying intervals, with a teaspoonful of beef-juice every four hours comprised the treatment. At the end of one week the whole condition was changed and the child soon recovered completely. Fowler's solution was given during the rest of the treatment.—*Med. News.*

PEDIATRICS

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EDITORIAL COMMENTS

Limitations of Suprarenal Extract as a Therapeutic Agent

In respect to the therapeutic action of suprarenal extract perhaps the following quotation from John J. Kyle, M.D., (*Therapeutic Gazette*, January, 1902), marks most of the present uses, or, we may better say, promises of use:

"One is led to conclude that there is probably greater use for adrenalin in rhinology than in any other branch of medicine.

"Suprarenal gland, on account of its instability is, in many respects, very unsatisfactory in solution. However, in the form of an unguent I find conspicuous use for it at the present time. Aqueous extracts of suprarenal gland being unstable and so unsatisfactory, great efforts have been made by several investigators to isolate the active principle of the gland, with the result that adrenalin was given to the profession by Dr. Jokichi Takamine.

"Adrenalin is a fine, crystalline powder, yellowish-white in color, slightly alkaline in reaction, slightly soluble in water and insoluble in hydrocarbon oils. The crystallized powder dissolved in normal salt solution, 1-1000, with 0.5 per cent. of

choretone, is supplied ready for immediate use. In this form it may be directly applied to the mucous membranes of the nose, throat, or eye; the ischemic effect is practically instantaneous, lasting from fifteen minutes to one hour. Its action upon the ocular conjunctiva is probably the most prolonged.

"There seems to be a wide discrepancy of opinion among operators relative to the after-effect of adrenalin upon the blood supply to the affected parts. Some claim that there is a predisposition to secondary hemorrhage after operation.

"Dudley Reynolds makes a bold statement that adrenalin lessens rather than encourages secondary hemorrhage. My opinion is that the retractile effect of adrenalin is followed by subsequent dilatation of the blood vessels, though this is often slight.

"In operations for strabismus, where cold compresses are immediately applied, the subsequent hemorrhage is lessened, and return, by absorption, to the normal coloring is much quicker. Relative to the strength of the solution necessary to produce ischemia of the mucous membrane, Takamine found that a drop of a solution of 1-10,000 is about the weakest from which therapeutic effect may be expected."

We are beginning just now to realize that with suprarenal extract, as with all the other vaso-constrictors of recent memory, there may be disadvantages. Cocaine and antipyrine were once the boast of rhinology, but are now rarely used—at all events for the purpose named. Whether adrenalin may not frequently cause secondary hemorrhage, or reduce the resisting power of the tissues, or induce a subsequent "doughy" engorgement of the erectile tissues of the nose worse than the original coryza,—experiment and observation must still determine.

A fresh case of influenza with severe coryza is a distinct contraindication to its use. The drug sets the apertures to all the cranial sinuses gaping, and if the patient unguardedly uses his handkerchief while the mucous membranes are under the influence of the drug, bacteria will be certainly blown into the antrum of Highmore, probably into the ethmoid cells and the middle ear, and possibly into the frontal sinuses as well. Cases of this kind with resultant empyema of all the sinuses named are already on record. "A word to the wise" is therefore not untimely at present. B.

Demodex Folliculorum Disease.

Several years ago the writer showed a woman at the New York Dermatological Society with a peculiar eruption on the face resembling more than anything else minute papules of molluscum contagiosum and this was thought to be the disease present. He called attention to the number of *demodex follicu-lorum* observed in a state of vigorous activity when examined under the microscope and stated his belief that this large parasite must be of more etiological importance than text-books had ever accorded it, especially when so much importance was given to minute cocci. Since then he has taught that the demodex was probably something more than a passing tenant of the follicles of the skin.

Debreuill (*Journal de Méd. de Bordeaux*, No. 4, 1901) reports a case of long-continued pigmentation of the face in a woman, showing prominent hair follicles from which a minute horny spine projected causing the skin to feel rough. Three months later after vigorous treatment the condition persisted and so did the parasites. Three similar cases reported from Italy are referred to.—C. W. Allen, *Postgraduate*.

ORIGINAL ARTICLES

ARTIFICIAL INFANT FEEDING.*

By Samuel A. Visanska, Ph.G., M.D.,
Atlanta, Ga.

SHOULD the mother find it necessary to abandon nursing she does not necessarily have to wean the baby, since she may employ a wet-nurse. There is no question that the milk of a good wet-nurse is greatly to be preferred to artificial feeding, as you only exchange the milk of one mother for that of the other. Still, there are many objections to the employment of a wet-nurse, and it is often impossible to obtain a suitable one. Nevertheless, in the case of an extremely delicate child the employment of a wet-nurse often is the baby's only chance of life. I will not dwell on the methods of selecting a wet-nurse as they are, no doubt, familiar to every physician. The principal point to remember is to see that they are free from specific or tubercular taint.

Artificial Feeding.—This brings us to the consideration of the very complicated subject of artificial feeding, one of the most perplexing problems which can present itself to the combined study of mother, nurse and physician. While science has done much for surgery and other branches of medicine the artificial feeding of babies is still in the background, no two physicians agreeing on this most important subject. It is amusing at times, when getting a history of a case where a child is fed on artificial food, to hear the mother say, "How doctors do differ. I have had five doctors with this child and each one orders a different food. Dr. A says preparation No. 1 will not agree with my child; Dr. B says, 'take it off Dr. A's food or it will starve to death,' and so on." Is it a wonder the layman has begun to look on us with suspicion? It is well, however, that we do differ at times as to diagnosis and treatment, but we often "agree to disagree" when there is no need

* Read before the Medical Association of Georgia, at Augusta, 1901.

for it. To feed a child artificially requires more skill than to perform the operation for appendicitis, yet you will see journals and text-books filled with articles as to the best method of performing this operation. How few articles we see on infant feeding, and even then little attention is paid to them. Society has done much for the bottle-fed baby, from the fact that so few mothers of today will nurse their infants, preferring the ballroom and club, thereby placing a greater number of infants on artificial food, and naturally, a greater number of physicians have to direct the preparation of the food. In endeavoring to feed a baby properly we must bear in mind three important factors:

1. The quantity of the food.
2. The quality of the food.
3. The individual peculiarities of the child.

(1) One of the most frequent mistakes made in feeding a baby is that of giving it a much greater quantity of food than it can possibly assimilate, with the result that the child either vomits it or passes it through the bowels in an undigested state. A new-born baby's stomach holds without distention only about 1 ounce (two tablespoonfuls). How foolish, then, to direct to feed the new-born child from a full-sized nursing bottle and allow it to gorge itself with all it will take.

(2) The quality of the food.—Regarding the character of food to be given a child, that is, its quality, it is evident that the more closely the food resembles mother's milk the more likely it is to agree with the child. Chemistry has almost solved the problem of artificial feeding by giving a thorough analysis of woman's milk and cow's milk, which should be familiar to every physician.

Rotch's table gives:

WOMAN'S MILK.	COW'S MILK.
Reaction, alkaline.	Reaction, acid.
Bacteria, none.	Bacteria, present.
Water, 87.88 per cent.	Water, 86.87 per cent.
Total solids, 12.13 per cent.	Total solids, 13.14 per cent.
Fat, 4 per cent.	Fat, 4 per cent.
Albuminoids, 1 per cent.	Albuminoids, 4 per cent.
Milk sugar, 7 per cent.	Milk sugar, 4.5 per cent.
Ash, 0.2 per cent.	Ash, 0.7 per cent.

Besides these characteristics, woman's milk has a specific gravity of about 1031, while that of cow's milk is about 1029. My experience has taught me that modified cow's milk is the *ideal* artificial food for feeding infants, and a point that I want to make clear is this, it is not so much how you prepare the food as it is what you prepare. For fear that this broad assertion might be misconstrued I will explain further. While I prefer and use sterilized milk for infants; the point is this: if you have the milk, cream, water, sugar, etc., in right proportions, whether you sterilize, pasteurize or give the food raw, nine times out of ten it will agree with the child. Sterilization only destroys the bacteria and keeps the milk sweet for a longer time; it is only a process of steam heating. "And here's the rub." By what method are we to determine the proper ingredients for artificial feeding? We must have a starting point and then modify to suit each individual taste, as you will find every infant "a law into itself." Jacobi says that an infant's stomach should not be made a test-tube. I say it is a great experimental station, provided the experiment does not last too long. The method I have adopted of feeding babies is that of Professor Seibert, and that is to feed according to the weight and not the age of the child. There is good reason for this; a large baby requires more food than a small one, just as a large horse requires more food than a small horse, and it is on this principle we should feed infants. To illustrate, a baby at the age of three months might weigh 18 pounds, while the average is 12¼ pounds. If you were to direct the preparation for the three-months-old baby according to its age, the formula would be for a baby weighing 12½ pounds; therefore 5¾ pounds of the baby would be insufficiently nourished. On the other hand, a child at the age of three months, weighing 18 pounds, can be placed on the same formula as the average baby of eight months weighing 18 pounds.

How to Prepare the Food.—Having adopted Seibert's method of feeding by weight and not the age of the child, we will take, as an example, the child weighing 12 pounds. Referring to Seibert's chart, we find: size of bottle, 5 ounces; milk, 2½ ounces; water or gruel, 2½ ounces; sugar, 1½ drams; one bottle every two and a half hours. In twenty-four hours, seven bottles; 6 a.m. to 6 p.m., five bottles; 6 p.m. to 6 a.m., two bottles.

Directions.—Make use only of fresh bottled milk brought to the house every morning (including Sunday) early, by some reliable milkman. Never use milk from large cans, but have it delivered in bottles. Take the upper half of a quart bottle of milk (or, when necessary, of two) so as to include all of the cream and pour into a clean pitcher, dissolve the sugar of milk, add a pinch of salt if you like, and then filter through a small layer of clean absorbent cotton placed in a funnel directly in the nursing bottles up to the milk line.

(2) *Filtration of Milk.*—This filtration of milk and sugar water through a small layer of absorbent cotton, as devised by Dr. A. Seibert (*Arch. of Ped.*, July, 1894) removes all gross impurities from these fluids and seven-eights of the bacteria from the milk. The amount of cream in the milk is not diminished by this filtration; filth, manure, cow's hair, dust scales and bacteria (germs of disease) are present in all milk, even when delivered fresh and in bottles. The aluminum milk filter devised by Seibert is very convenient and is sold at 50 cents; the cotton filter discs are 25 cents per box.

(3) *How to Sterilize.*—Arnold's sterilizer is the best on the market, and comes in different sizes. See that the bottles are thoroughly cleansed, and after having filtered your milk solution into the nursing bottles, place a piece of clean raw cotton in the nursing bottle; pour hot water into the kettle up to the ridge, then place lid on top and steam over a brisk fire, according to the season, from May 1 to November 1, 30 minutes, and from November 1 to May 1, 20 minutes. Directly after feeding, rinse the bottles with clear warm water and then fill them to the top with soap water made with green caustic soap (or soft soap). The bottles remain filled with soap water until evening, when they are cleaned best by soap water and absorbent cotton wound around a stiff wire. Never use brushes. Remains of milk inside the bottles are best seen by holding them in front of a strong light and must be carefully removed. Nipples should be placed in weak soda solution and rinsed in clear water several times. If you find the child is constipated add a little cream to each bottle just before placing the nipple on and heat to 90° F. Never let the baby sleep with the nipple in its mouth. It is not only a bad habit but has a tendency to produce mouth breathing. A very convenient chart for directing the feeding of an infant is the one devised by myself:

CHART FOR FEEDING AN INFANT.

Name.....

Weight.....

Age.....

Milk.....

Water.....

Cream.....

Sugar of milk .....

Sugar, white.....

Salt.....

Number of bottles.....

Size of bottles.....

One bottle every.....hours

.....bottles 6 a.m. to 6 p.m.

.....bottles 6 p.m. to 6 a.m.

Nurse.....

Date.....

It is of no advantage to have the milk from one cow; it is, in fact, a distinct disadvantage, for the great difference which exists between the milk of different cows makes it impossible to prepare a proper imitation of mother's milk according to any fixed rules, unless you should have the individual cow's milk analyzed in order to determine in just what way the mixture should be made. Besides this, the milk of any cow is subject to variations from time to time, depending upon the nature of the food given it, the health of the animal and other factors. The selling of milk should be under the direct supervision of the respective boards of health, and each bottle should bear a label, "certified milk," with official signature. I am glad to see a move in this direction in the different cities, and it would not be a bad idea to extend it to the smaller towns.

Thinning Substances.—Sometimes we find it necessary to add thinning substances, such as barley water, gelatine, etc. They act purely mechanically, by getting, as it were, between the particles of casein during coagulation, preventing their running together and forming large, compact masses. Barley water is made by adding a tablespoonful of "pearl barley" to

a quart of water, boiling for fifteen minutes, straining and adding water sufficient to make the quart. If an alkali is necessary to add to the milk use lime in the shape of limewater, or, preferably the saccharated solution of lime; 5 to 15 drops of the solution can be added to each bottle.

Preparations on the Market.—As to the preparations on the market much could be written. Having stated fully my views as to the very best method of feeding infants, I say, use them if you like, but you are not imitating nature. There is not a text-book that will advise them. Unfortunately they often agree with the infant and sometimes they grow fat, but not strong, and if you watch the child's future you will find they do not have the power of resistance necessary to overcome disease. We all agree that condensed milk will make fat babies, but I compare the fat of a condensed milk baby to that of a beer-drinker—it is soft, flabby, unnatural. Unless you understand how to feed infants you will be unable to treat such cases as marasmus, rickets, scurvy, diarrheas, etc. Beginning with marasmus, Louis Starr says: "The chief etiological factor is diet. It occurs both in breast-fed babies and those brought up by hand, being in either case due to insufficient nourishment. The child wastes because he is starved." As I have already stated, food can be insufficient in two ways:

1. When it is supplied in amounts too limited to meet the demands of the system.

2. When it contains a minimum of the elements essential to nutrition or presents them in a form ill-adapted to the feeble digestive powers of infancy.

Professor Wilcox's comment upon the domestic measures should be widely circulated. He says that spoons, glasses and cups vary so much in capacity that it is never safe to prescribe solutions of powerful drugs to be measured by them. The use of glass graduates, which can be obtained accurately marked, should be insisted upon.—*Am. Jour. Pharm.*

THE EYE DEFECTS WHICH MAY CAUSE APPARENT MENTAL DULLNESS AND DEFICIENCY IN CHILDREN.*

By Charles Stedman Bull, A.M., M.D.,
New York.

A VERY common cause of apparent mental dullness or deficiency in young children is found in the existence of ocular defects; and of these defects of the eye, by far the most frequently met with are the various anomalies of refraction. Taking up these errors in the order of frequency, though not in the order of importance, we consider first, *hypermetropia*, or far-sightedness. Almost all infants are born with hypermetropic eyes, and in one sense, therefore, the hypermetropic eye is an undeveloped eye. Its antero-posterior area is too short for its refractive power and hence rays of light entering the pupil of such an eye are not brought to a focus on the retina but form a circle of dispersion on the retina unless the individual calls his power of accommodation into play. In the hypermetropic or far-sighted child, the eye is really adapted for seeing distinctly only objects at an infinite distance. Hence even for objects at a finite distance the hypermetropic eye must accommodate, and having used up a portion of its accommodative energy it has for near vision actually less accommodation at its disposal than the normal eye. It does not possess sufficient static focusing power and the symptoms of this defect are often painfully manifest.

Hypermetropic people complain of inability to sustain accommodative effort for near objects for any length of time. Owing to the very frequent presence in this form of refractive error of ocular muscle disturbance, due to weak converging power, the symptoms of pain in the eyes, headache and a sense of pressure and weight upon the eyes and brain after continuous close work are so constant and at times so severe that the child becomes incapable of any sustained or even transient mental effort. He becomes dull, slow and even stupid; falls behind in his classes, and too often becomes a butt to his fel-

* Read before the Academy of Medicine, April 18, 1901.

lows on which to sharpen their wits. In brief, in young children with unrecognized and uncorrected hypermetropia, quickness of vision und rapidity of mentality are very often seriously disturbed. When these children have their eyes thoroughly examined and the error of refraction is recognized and properly corrected, it is surprising to see how rapidly the dullness and stupidity disappear, as well as the subjective symptoms of which these children complain.

The next most frequent refractive error to be considered in this connection is *astigmatism*, which has often led to the unjust charge of dullness in its unfortunate possessors. Both distant and near vision are rarely persistently normal in these cases. There is frequently a most annoying apparent doubling of images, especially when looking at small objects, which is mentally confusing. Defective near vision, so common in these children, is almost always most disturbing. Even in hypermetropic astigmatism the book is very often brought close to the eye in order, by increasing the size of the retinal image, or make up for its indistinctness. If the child is neurotic or come of neurotic parentage, this additional handicap is most harmful to his general physique and leads to the development of a whole train of apparently irrelevant reflexes, which, however, to the expert examiner are very real and interdependent. Even epileptiform attacks, if not capable of being actually produced by refractive errors, especially astigmatism, in persons with stable brains, may often find their exciting cause in such errors where there is already a predisposition to the disease.

The third refractive error, and by far the most important of all, because of its possible disastrous results, is *myopia*, or short sight, and it is to be considered as one of the modern curses which is unfortunately rapidly increasing. Sanitary science can have no more important or fruitful field of application than is presented by it today in our educational institutions.

It has been recognized for nearly one hundred years that the requirements of school life resulted in injury to the eyes of many of the children. The number of short-sighted pupils increases from the lowest to the highest schools and the increase is in direct proportion to the length of time devoted to the strain of school life.

Anatomically considered, the myopic eye is the exact reverse of the hypermetropic eye. Its antero-posterior axis is

too long, so that the rays of light entering the pupil are brought to a focus in front of the retina and then, diverging again, form a circle of dispersion upon the retina. While in infancy and early childhood the predominant refractive anomaly is hypermetropia or astigmatism or both, many of these eyes during the early years of school life pass from the hypermetropic into the myopic form of refraction, as has been well said by Dr. Risley, of Philadelphia, "through the turnstile of astigmatism."

The near-sighted child sees nothing distinctly at any point beyond his far point, even with completely relaxed accommodation. In a schoolroom he does not see the blackboard or the maps on the walls unless seated close to them. With the strain to see distinctly comes in course of time a narrowing of his work. To the careless observer, whether teacher or schoolmate, he appears dull, inattentive and stupid. The mental evolution of a child suffering from an unrecognized or neglected myopia is instructive. Unable to see what his companions see, jeered at by his fellows for his failures, he retires within himself and lapses into desultory or miscellaneous reading *by himself*. He becomes introspective and perhaps perverted in his tastes, and self-consciousness becomes one of his mental attributes. Though he may be superior in his knowledge to his fellows, his mentality is often mere precocity.

If we carefully examine the eyes of such a child and correct not only the refractive error but also the habits of life we open a new world to him at once. He sees as well as his fellows, and, his ambition being aroused to work and play with his schoolmates, the dullness and eccentricities soon disappear and no more doubts are cast upon his mental condition.

Muscular anomalies as a cause of apparent dullness in children.

When we come to consider the subject of muscular anomalies as a cause of apparent dullness and backwardness in children we enter upon a wide field. Most of these muscular defects are more or less intimately connected with errors of refraction. Primary convergent squint is generally associated with hypermetropia and primary divergent squint is very often met with in connection with myopia. In fact it may be said that a primary squint, whether convergent or divergent, is almost always found associated with some variety of refractive error.

Leaving, however, out of consideration the cases of squint in which the objective symptoms are always plainly visible. as not strictly germane to the subject, we will confine our attention to the very large class of cases known as insufficiencies of the ocular muscles. This condition may exist in any one of the six extra-ocular muscles. The most common symptoms are headache and eyeache, with vertigo, a sense of strain in the eyes and a feeling of mental confusion, and occasionally diplopia or double vision. All these symptoms may be produced in a patient suffering from weak muscles by close application for a length of time; grow more severe if the work is persisted in, until the muscular asthenopia or eye-strain becomes so marked and so constant that the child is no longer capable of any continuous mental effort and he becomes a target for the epithets of dull or stupid, which within my own very recent experience, have been too often unjustly applied.

The rarer ocular defects which may be the cause of apparent dullness in some children are some of the congenital anomalies of the eye and they are here mentioned in the order of the frequency of their occurrence. They all cause more or less marked defective vision and most of them cannot be improved by any known methods of treatment, medical or surgical.

1. *Congenital Cataract.*—These cases are easily recognized in infancy and are susceptable of marked improvement by operation.

2. *Dislocation of the Lens.*—These cases are also susceptible of improvement by operation, though to a less degree than the cases of congenital cataract.

3. More or less marked *absence of pigment* in the *uveal tract*, notably the iris. This condition is known as the Albino-eye and does not admit of amelioration.

4. *Coloboma* or fissure of the iris alone, or of the iris and iris and chorioid, with or without a coloboma of the sheath of the optic nerve. This condition is an arrest of development readily recognizable and for which nothing can be done.

5. *Aniridia* or entire absence of the iris, an anomaly of very rare occurrence and almost always accompanied by marked impairment of vision. The absence of the diaphragm, the iris, exposes the eye to the entrance of a flood of light at all times, for which little or nothing can be done. It is a singular fact that most of the cases of Albino-eyes and of aniridia have been associated with myopia.

There is another class of cases of congenital defects which are of great interest to the psychologist and teacher, as well as to the practicing physician, which have nothing whatever to do with the eye as an organ of vision. They are cases of congenital word blindness in which there is an absolute inability to learn to read. Four such cases have recently been reported by Dr. Hinshelwood, an English physician, and to these have been added five more by Mr. Nettleship, the well known London ophthalmologist. The difficulty is considered to be a congenital want of visual memory, due to an organic deficiency in the part of the brain where the visual impressions of letters and words are registered and stored. This is a speculative explanation based on pathological evidence from cases in which death having occurred some time after sudden loss of reading power, with or without other symptoms. Changes have been found in the left supra-marginal convolution and angular gyrus which parts probably form the center in which are stored the visual memories of letters and words. This condition has attracted but little notice hitherto, but it does not follow from this that it is of rare occurrence, and it may be moderately frequent. The importance of this condition from the educational standpoint is obvious. If the defect be curable the remedy will probably be found in methodical and persistent instruction in reading, begun at the earliest possible age, when the brain cells are capable of marked development. The capacity for improvement in these cases would undoubtedly vary with the degree of congenital deficiency in the brain organ of visual memory, and the old plan of teaching every child his letters as the first step in his education, would give a word-blind child a better chance of improvement than some of the modern methods. If the defect is irremediable the sooner this fact is recognized the better for both pupil and teacher. The probability is that slight cases could be very much improved by early training. In the severe cases it would be better probably to abandon the attempt at teaching the child to read and educate him on other lines.

It would seem that the detection of congenital word-blindness would be easy in the children of educated parents, as such children receive constant personal attention at home. It would be more difficult to recognize in the children who crowd the elementary schools. The education of backward and deficient children by specialized methods is now receiving more atten-

tion than formerly, and if from all such children we can differentiate those whose only or principal difficulty consists in real inability to learn to read, the result would be of great value to these children and to the community at large.

The Vaccination Wound Must be Treated in a Surgical and Scientific Manner.

Such is, we take it, the one clear and admitted result of our recent experiences. The public must be thoroughly educated in this highly important matter. Self-vaccination should be absolutely forbidden and the physician whose neglect of the proper precautions and after-treatment permits tetanus or other infection is blameworthy. In the report of the Camden Board of Health the tetanus cases are said to be due not to the character of the virus but to the distribution of the desiccated tetanus germs by the wind. How, then, did they gain access to the wound? As the committee report, "by the neglect of the patients to present themselves to the physician so that the wound could receive proper attention." In all the cases the wound was exposed by the scab being knocked off or removed, or else the arm had been injured and infection resulted. Frequently children scratched the wound and infected it in this manner. "Tetanus or other infection can never occur if the vaccination is properly protected from contact with the atmosphere, or with soiled clothing, bandages, etc." In a word, the vaccination must be regarded as a surgical operation, and its after-treatment should be under the physician's direction. There will then be no tetanus or other complications. The principles of aseptic surgery are as imperative in this as in any other wounds or operations.—*American Medicine.*

EPIDEMIC CEREBROSPINAL MENINGITIS; MENINGEAL HEMORRHAGE; INTUSSUSCEPTION; DIAPHRAGMATIC HERNIA.*

By Isaac Abt, M.D.,
Chicago, Ill.

THIS brain and spinal cord are from a case of epidemic cerebrospinal meningitis which terminated fatally after eight days. The history of the case was the following: The patient was 7 years old, and was admitted to the hospital on June 16, 1900. He had been ill four days before admission. The onset of the disease was marked by severe headache; the child ceased playing and was forced to go to bed; he vomited a great deal, and is said to have had chills and fever. On the morning after the onset he was delirious and did not respond when spoken to. An extensive purpuric eruption was noted on the third day.

The daily notations were as follows: On the second day after admission the child vomited everything; he was extremely restless, and fever was 100°. On June 18th the condition was aggravated; the blood-count showed 26,000 leucocytes and 3,850,000 red blood corpuscles. On this day a lumbar puncture was made; the fluid was turbid and was found to contain, in pure culture, the diplococcus intercellularis. On June 19th the patient continued very restless, the pulse was small and rapid. He died at 10 o'clock p.m.

I present to you tonight the brain and the cord from this patient; the brain makes the impression of being large for a 7-year-old child; the convolutions are flattened, the veins of the pia are much distended. It is observed that along these veins is a purulent exudate. These lines of pus may be observed following the engorged vessels over the entire convex surface of the brain. Isolated patches of pus are also found on the convex surface, which do not follow the vascular distribution. At the base of the brain it is observed that these vessels are dilated and filled, and that a layer of pus follows along the vascular distribution. A thick, purulent exudate is

* Read before Chicago Medical Society, October 16, 1901.

observed over the optical chiasm, and patches may be seen to be distributed irregularly over the base of the brain. It will be noticed upon examining the spinal cord that the dura mater has been reflected back, the vessels of the pia are engorged and the entire surface exposed by removing the dura, particularly on the posterior surface, is covered from one end to the other with purulent exudate.

Meningeal Hemorrhage.

The next case is one of meningeal hemorrhage in a newborn infant. This infant was seen in consultation a few hours after birth. The labor had been a difficult one, the mother being a primipara. The child was born asphyxiated and did not cry; it was in a comatose condition, the asphyxia was marked and there were slight twitchings of the face and extremities. This child lived twenty-four hours.

The autopsy revealed the brain as you see it here. A diffuse hemorrhage had occurred between the dura and the pia mater, giving the entire surface of the brain a hemorrhagic appearance. The pia is everywhere tinged with blood. It will be noted that where the membrane dips down into the longitudinal fissure, the same appearance presents as is observed on the convex surface.

These cases are of great interest. They occur after prolonged labor, particularly in primiparous women, after instrumental delivery, and are also observed in those conditions which are spoken of as the hemorrhagic diseases of the newborn. This meningeal hemorrhage usually gives rise to the symptoms of coma and cerebral compression. Many of the children succumb to the disease during the first few days after birth; not a few recover from the immediate effects of the hemorrhage but remain palsied and ultimately belong to that class of cases designated as infantile cerebral palsy.

Intussusception.

I present a specimen illustrating a case of intussusception. The child in whom this occurred was 15 months old and of illegitimate parentage. It had spent the first few months of its life in a baby farm where it had become marantic. It was brought to the hospital in the early part of the summer suffering from an acute gastroenteric disorder. The child did poorly and during the hot days of the past summer great difficulty

was encountered in feeding it, so that the marasmus became very marked. There suddenly developed an obstruction of the bowels, with intense pain of a paroxysmal character and a bloody discharge. Collapse ensued, and the child died.

Upon autopsy, the intussusception which is to be noted in the specimen which I present to you now was found. It is of the ileocolic variety. The invaginated gut is about 2 inches in length; it is of a dark purple hue, and shows a beginning gangrene. The obstruction was complete.

These cases of intussusception in young children are not altogether of infrequent occurrence. The cases may be divided into three varieties—the enteric, which involves only the small intestine; the colic, which involves the colon, and the ileocolic, which is perhaps the most frequent, and is, as the name indicates, an invagination of the ileum into the colon.

No surgical relief was attempted in this case; the marasmus was so great and the course of the disease so rapid that surgical intervention was out of the question.

I have another variety of intussusception from the same child. This is an example of the enteric variety; it is the so-called agonal intussusception. It occurs during the act of death and has pathological interest, but it is of no clinical significance. These cases, according to Holt, may be found in 8 per cent. of all autopsies upon children under two years of age. They are always multiple in character, and this has already been said of the enteric variety.

Diaphragmatic Hernia.

I have on a previous occasion shown to this society a case of diaphragmatic hernia. Through the kindness of my friend, Dr. Julius Hess, I have been presented with another specimen showing this interesting malformation. As in the previous case, so in this one, the defect of the diaghragm is on the left side. A shred of muscle remains anteriorly. Three fingers can easily be passed through the defect in the diaphragm. It is observed that the heart is pushed to the right and lies in the right thoracic cavity. The small intestine and the larger part of the stomach occupy almost entirely the left thoracic cavity. The left lung is rudimentary and occupies a small corner of the left thorax.

Microscopic examination of the lung tissue shows it to be atelectatic. The liver, though somewhat large, occupies its

usual place in the abdominal cavity. I have not been furnished with any of the clinical data in this case.

Swelling of Peyer's Patches.

I desire to call your attention very briefly to a specimen of ileum and cecum which were removed from an eight-weeks-old infant during the past summer. The infant had been artificially fed and had never thrived; he became marantic, and died gradually of a progressive asthenia. You will notice in the ileum that Peyer's patches are intensely swollen and raised, presenting much the appearance of typhoid lesions before ulceration has occurred. This form of lesion in gastrointestinal diseases of infancy is rare; one usually notes slight swelling of the solitary follicles and Peyer's patches. It is rarely so marked as we find it in this case. There is no ulceration to be observed in our specimen.

4326 Vincennes Avenue.

Bromide of Ethyl for Children.

Dr. S. L. Snow (*Buffalo Med. Jour.*, October) calls attention to the use of bromide of ethyl as a safe and convenient anesthetic for the removal of adenoids and tonsils from children. The anesthesia lasts from one to three minutes, and is without any unpleasant after-effects. Hemorrhage is less than when ether is used, and there is less danger than with chloroform. The method of administration is important. The drug should always be procured in the original hermetically sealed tubes, as it is not safe to use it after the tube has once been opened. The cone should not be removed from the face after the anesthetic is started. The time required to produce unconsciousness is about one minute. If it is necessary to prolong anesthesia beyond five minutes ether should be used.—*Chicago Clinic.*

SOCIETY REPORTS

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

Stated Meeting, Nov. 15, 1901.

LONDON.

Mr. Robert Jones. of Liverpool, in the Chair.

Dr. David Walsh showed a girl, aged 14 years, who had suffered for three months from pain particularly in the left loin. On examination there was a tumor, dull to percussion, occupying the left flank and left lumbar region. An X-ray plate showed a large, opaque band reaching from the kidney to the pelvis, with a small calculus in the latter. A stone impacted at the lower end of the ureter causing hydronephrosis was diagnosed upon the foregoing grounds.

Mr. R. Clement Lucas suggested that the patient before being operated upon should be examined per vaginam under a general anesthetic.

Mr. Sydney Stephenson showed a child, aged 17 months, who had been brought to him with a small ulcer inside the lower lid of the right eye. The ulcer measured 7 x 5 mm. and its base was somewhat lardaceous and nodular. The child was thin, and the inguinal and cervical glands were prominent; there were several small circular ulcers on the buttocks; there were moist sounds over the back of the chest. A diagnosis of tubercle of the conjunctiva was made, and the child was admitted to the Northeastern Hospital for Children on October 23, 1901. Tubercle bacilli were found in scrapings from the conjunctival ulcer. On November 13th there was retraction of the head, double optic papillitis and a typical tubercle in the background of the left eye. The tubercle lay not far from the optic disc, to the inner side of the latter, had a fawn-color and a circular outline, and was about one-half as big as the optic disc; the child's temperature was irregularly febrile. Mr. Sydney Stephenson regarded the case as one of acute miliary tuberculosis with cerebral, pulmonary, conjunctival and choroidal manifestations.

Mr. George Perret remarked that the conjunctival condition answered to the tuberculous ulcer which was sometimes found about the margin of the lip.

Dr. C. O. Hawthorne inquired whether Mr. Stephenson regarded the condition of the optic discs as indicating the existence of tuberculous meningitis or tuberculous intracranial tumor.

Mr. Stephenson, in reply, said that the neuritis had the appearance of a so-called tumor-neuritis or choked disc, but he thought the probabilities pointed to a tuberculous meningitis.

Dr. C. O. Hawthorne showed a boy, aged 6 years, with considerable enlargement of the lymphatic glands of the neck, with a similar but less marked condition of the axillary glands. The enlarged glands were non-adherent, readily separable and free from tenderness or other evidences of inflammation; liver and spleen possibly a little enlarged; the blood showed no excess of white corpuscles, but a relative increase of lymphocytes.

Dr. Hawthorne considered the case to be one of Hodgkin's disease.

Dr. A. E. Sansom remarked that there were rales at the base of the patient's lungs, which was very unusual in disease of that kind.

Dr. Robert Hutchinson suggested the case was not one of Hodgkin's disease but of tuberculosis of the glands. Indeed he doubted whether there was such a condition as Hodgkin's disease at all and whether all such supposed cases were not simply tubercle. The only criterion was to remove a portion of a gland and to stain for tubercle bacilli or to inoculate an animal with the fragment. He was convinced that the blood condition was of no assistance in diagnosis.

Mr. George Perret was inclined to agree with Dr. Hutchinson's diagnosis.

Mr. Clement Lucas could not admit that Hodgkin's disease was non-existent.

Dr. Hawthorne, in reply, held that if the usual clinical landmarks held good this was a case of Hodgkin's disease; the character of the glandular enlargement was different from that of tubercle.

Dr. George A. Sutherland and Mr. J. Jackson Clarke showed a child, aged 2 years, with marked shortening of all the limbs, six digits on each hand, slight hare-lip and congenital heart disease. They suggested that an achondroplastic condition was present.

Dr. Robert Hutchinson remarked that the case bore an extraordinary resemblance to one he had himself shown at the last meeting of the Society. Both had extra digits, absence of the gums, congenitally abnormal heart and a peculiar shortness of all the extremities. He was still unprepared to call it achondroplasia. He might add that the mental condition of his patient was good.

Dr. G. Perret pointed out that the hair on the patient's scalp was scanty; there was also an absence of eyebrows and the lower lashes were missing.

Dr. Shuttleworth enquired as to the family history. He thought that the patient was distinctly behind children of the same age mentally.

Dr. Edmund Cantley showed the heart of a girl, aged 15 years, who had died from hemoptysis. The girl had had rheumatic fever two years previously; five months before death she was under treatment for a febrile attack and had a diastolic pulmonary murmur; she recovered in a fortnight and remained fairly well for three months. During her last illness (of two month's duration) she had a variable amount of pyrexia up to two weeks before her death and frequent attacks of hemoptysis. The physical signs consisted of hypertrophy and dilatation of the right side of the heart with a loud diastolic murmur in the second to the fourth left intercostal spaces, close to the sternum. There was no thrill and no signs of pulmonary stenosis except that the girl was high-colored; the heart weighed 113 and was firm and globular; the right ventricle was much hypertrophied; the pulmonary valves were much thickened and puckered; on two of them were large, warty vegetations with apparent loss of substance. All the other valves were normal; the left lung weighed 16½ oz. and contained large infarcts; in the right lung there were several small infarcts; the liver showed early nutmeg change; the spleen weighed 6½ oz. Cases of pulmonary regurgitation are rare and are commonly associated wlth infective endocarditis or with pulmonary stenosis. In this patient there was undoubted pulmonary stenosis although no murmur indicative of the lesion was heard during life; there was also an acute endocarditis of the pulmonary valves, but it was not clear that this was of the infective variety; some of the symptoms indicated that it might have been of rheumatic origin.

Dr. Theodore Fisher thought the case was one of chronic endocarditis, a view shared by Dr. Arthur E. Sansom.

Dr. Cantley, in reply, said the bleeding might have been either hemoptysis or hematemesis. and had been explained on the assumption that there was cardiac failure. He agreed as to the endocarditis. He thought the case started as a congenital pulmonary stenosis and that later, as the result of rheumatism or some infective process, there had been endocarcitis limited to the pulmonary valves.

Mr. W. Gifford Nash showed the the kidneys from two children of the same family, whose ages were respectively 10 weeks and 6 months. The kidneys were the seat of congenital cystic degeneration and the enlargement in each case was noticed shortly after birth.

Dr. Theodore Fisher asked whether it was frequent for children to live weeks or months with congenital cystic kidney.

Mr. Nash, in reply, said he was under the impression that some of the cases reached adult life.

Mr. J. Howard Ray showed specimens and sketch illustrating a case of congenital umbilical hernia of the size of a fetal head, occurring in the Children's Hospital, Manchester.

Dr. Cantley read a paper on "The Etiology and Morbid Anatomy of Tuberculous Meningitis," based on the post-mortem and clinical records of the last twenty-seven fatal cases under his care. Twenty-two occurred in children under five years of age and only five during the next five years of life. Three were infants under one year of age; a family history of tuberculous disease was present in only five cases; the influence of heredity might be summed up as consisting of exposure to infection of weakly or predisposed children. In only two instances was the disease limited to the meninges. In twenty-three the mediastinal glands were caseous, and in four of these the mesenteric glands were also affected. In the other two there was no note as to the condition of the glands. Injury was a possible exciting cause in only one case. All the evidence was strongly confirmatory of the view that the main channel of infection was the respiratory tract and opposed to the view that infection could have been acquired from the consumption of tuberculous milk. In twelve instances there was old or advanced tuberculous disease of the lungs. In nine others the lungs were involved. Two of the instances in which the mesenteric glands were caseous could be easily explained as the result of intestinal infection by swallowed sputum. One of the cases in which the tuberculous process was limited to the meninges depended upon caries of the cribriform plate of the ethmoid. Dr. Cantley summed up his views shortly as follows: Inheritance means exposure to infection; injury is very rarely an exciting or predisposing cause; the respiratory tract is the great channel of infection; the alimentary tract is rarely primarily infected; tuberculous milk is rarely if ever the source of infection. Limitation of the disease to the meninges is very rare. The prognosis is very hopeless on account of the extent of the tuberculous disease elsewhere. the evidence obtained from the examination of the brain shows that operative treatment may be discarded as experimental rather than useful.

Dr. Sutherland agreed with the views expressed by Dr. Cantley, particularly as to the correct statements with regard to the prevalence of tabes mesenterica in early life. As to the alimentary canal, if the child had been properly fed he thought the risks of tuberculous infection in that way were not great.

Dr. Theodore Fisher said that at a dairy near New York

forty cows were found to be tuberculous, and they were all killed; but if the thousands of children who had consumed the milk only one was tuberculous, and it was not certain that even this case came from that source. His own experience fully bore out that of Dr. Cantley.

Dr. Willmer Phillips asked whether Dr. Cantley had had any experience of tubercle having been disseminated through carious teeth. He had suspected such a source quite apart from alveolar abscess. He thought one of his cases of tubercular meningitis might have occurred in that way.

Dr. Cantley, in reply, said he had no evidence of tubercular trouble starting from carious teeth. In every case he found definite causes somewhere. In one instance, where the disease was limited to the meninges, there was caries of the cribriform plate of the ethmoid and in another similar case it probably followed injury or infection from an old pleurisy at the right apex. There might be tuberculous lesions in the mouth but he included them among the skin lesions.

Hemophilia and Nosebleed Yielding to Thyroid Treatment.

Scheffler (*Arch. de Méd. et de Phar. Militaires*, March, '91) reports the case of a 22-year-old soldier of good family history who without obvious cause was attacked by purpura and obstinate nasal hemorrhages. The hemophilic condition was absolutely unaffected by ordinary therapeutic agents, and the epistaxis became so persistent and exhausting that permanent blocking of the nasal fossa was necessary. Treatment by thyroid extract exerted an immediate and beneficial effect, and was followed by cure. In three days the violent and persistent epistaxis had practically stopped. In six days, about 8 grains of thyroid extract having been given daily, the purpuric eruption ceased and the old spots began to disappear.—*Georgia Jour. of Med. and Surg.*

PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, December 10, 1901.

The President, Dr. Thompson S. Westcott, in the chair.

Dr. James K. Young exhibited a patient on whom he had done an operation for bow-legs. The child was a girl, five years of age, who, in 1899, was brought into the out-patient department of the Polyclinic Hospital, for bow-legs. Braces were applied at that time, but the child disappeared from observation and returned only recently, when the condition had decidedly increased, and it was too late for any satisfactory treatment with apparatus. An operation was at once advised. The one performed in this case was an unusual one, the Macuen operation not being used because it is likely to leave a decided prominence above the knee; the tibia and fibula were divided a little below the knee, and the leg was set in good position; the result had been excellent, the legs being practically straight on both sides and there being no prominence or deformity resulting from the operatien. The skiagraph showed separation of the bone at the point of division, the space being filled with cartilage; the operation had been done only five weeks before, and and undoubtedly this will later become bony. This operation is a more difficult and a more dangerous one than the Macuen operation, and there is some especial danger of wounding the anterior tibial artery. It is therefore not a favorite one in this country, but is frequently done in Germany and has the decided advantage of giving a more esthetic result.

Dr. Young also presented a child, three years old, that had been operated upon for acute epiphysitis of the hip joint in infancy. The child was perfectly healthy at birth but two weeks afterward there developed in the hip-joint an acute inflammation, with pain, swelling and contraction of the joint, attended with great prostration. Two weeks later she was admitted to the University Hospital, and an incision was made by Dr. Willard. About 1 ounce of pus escaped; the wound was packed and drained, and in six weeks was entirely healed, with perfect motion of the joint.

The infection in these cases is identical with acute osteomyelitis, being a pyemic affection of the bone. Staphlycocci usually produce this condition; exceptionally, streptococci. The disease is usually very acute and unless treated promptly results in destruction of the joint and in general infection with involvement of other joints. Infection may occur through any of the mucos surfaces, through a bone wound, or through the umbilical vein.

The treatment consists in a free incision with drainage and supporting treatment. Under this, cases always recover, but fatal cases are frequently met with where treatment is not prompt and thorough.

Dr. J. M. Miller asked Dr. Young whether he had operated on many colored children for bow-legs. Dr. Miller was interested in the question of bow-legs in colored persons because, while one frequently observes this deformity in marked degree in negro children, negro adults appear but rarely to be bow-legged. The explanation of this he was unable to see, unless it indicates that even extreme deformities often recover without any special treatment, as the lesser ones most certainly do.

Dr. Young, in reply, said that he had operated on a great many colored children for bow-legs and that the condition is an extremely frequent one in negro children, but that he had also observed it in adult negroes as well. It is commonly concealed, to a considerable extent, by the clothing; but one fact which indicates its presence is that the hands appear to come down very low, thus giving the upper portion of the body, as compared with the legs, an appearance of undue length. If one observes such a condition it is always enough to make one suspect the existence of bow-legs or rachitic spine, even though skirts or other clothing cover the deformity. The condition is by far most common in negroes, next, in Italians. This child was an exception, since it was an Armenian.

Dr. J. P. Crozer Griffith said that the statement is often made that in the earlier stages of bow-legs the curvature will correct itself if the child is kept off its feet. Instances are reported in which a splint or other apparatus has been applied to one leg and the other left free, the patient being meanwhile kept in bed, and in which the improvement was quite as great in the free leg as in the other. His own experience has convinced him of the great degree to which recovery can take place, but he wished to learn Dr. Young's wider experience in the matter, particularly regarding the question whether it is the application of the padded internal splint or merely the passing of time, combined with massage and similar methods of treatment, which works the cure in these early cases.

Dr. Young, in reply, stated that many cases up to a certain age recover from the use of apparatus alone. Rickets is active as late as the end of the third year or even later, and consequently success may be had from treatment with apparatus up to the thirty-sixth or perhaps to the forty-second month of life. Up to this period he regularly advises the use of splints

or rest, or both, and generally has excellent results from such measures. Later, apparatus gives no satisfactory results. Occasionally patients may be seen to recover spontaneously from bow-legs owing to increase in the strength of the muscles. As to the use of splints he considers them extremely servicable and thinks that there is no doubt that they are of more value than rest alone.

Dr. S. McC. Hamill showed specimens of thrombosis of the superior longitudinal sinws, with infarct of the kidney, and also exhibited a case of chronic heart disease with severe renal symptoms.

The patient from whom the specimens were obtained was a female child, aged three years. She was born at full term after a long and tedious labor; she was healthy at birth but lost weight steadily for the first three days; the temperature was elevated from birth, reaching 105° on the sixth day. On the fifteenth day she had a large hemorrhage from the bowel and some bleeding from the umbilicus. The cord was detached on the day preceding the hemorrhage; the temperature became elevated; the child emaciated rapidly and became cyanotic; meningeal symptoms developed on the eleventh day; she developed a purpuric eruption over the flexor surface of the arms and over the shoulders. On the twentieth day she had a second hemorrhage from the bowel after which she became comatose, her breathing grew irregular and labored and she died on the following day.

The autopsy, made twenty-three hours after death, showed as the principal lesions, marked congestion, and, in some areas, hemorrhage into the mucous membranes of the intestine; a small hemorrhage into the left suprarenal capsule and some congestion of the right, and a hemorrhagic infarct of the right kidney. The umbilical vessels were filled with clots; there was thrombosis of the superior longitudinal sinus and extreme congestion of the vessels of the pia, especially those adjacent to the sinuses.

Cultures made from the umbilical artery, the spleen and the heart-blood showed a pure culture of a short, rod-like bacillus, the nature of which had not been determined.

The second case was a child, Letta C., aged 3 years and 7 months, with a family history of rheumatism and tonsillitis; she had had measles, mumps and pertussis, and frequent sore throats, but no distinct history of rheumatism; she had been dyspneic and had had disturbed digestion for six months: and for a year the mother had noticed that the child's heart beats were unusually violent. Recently the dyspnea had become more marked, especially in lying down; her abdomen had enlarged, her urine had become scanty and dark-brown in color, and she had some puffiness of the face.

Physical examination showed the cardiac apex beat in the

sixth interspace, ½ inch outside of the nipple line; a forcible impulse; no thrill; an area of deep dullness at the second rib ½ inch to the right of the sternum, 1½ inches outside of the mid-clavicular line. Auscultation at the apex showed a loud, long, rather high-pitched, blowing, systolic murmur, heard at the axilla and the angle of the scapula, as far interior as the median line and as high as the fourth rib. There was a rough, rumbling murmur jnst before this sound, heard over a limited area of the apex. The first sound was loud and sharp; the pulmonary sound was accentuated.

Examination made ten days later showed the apex in the fifth interspace in the midclavicular line; the upper border of dullness, at the second rib; the right border a finger's breadth to the right edge of the sternum; the left border, a finger's breadth to the left of the midclavicular line. Auscultation showed no presystolic murmur, but a loud, sharp, mitral sound. followed by a rather lower-pitched, distinctly musical murmur.

The urine analysis on admission showed a specific gravity of 1022; albumin present, one third by bulk; microscopically, blood and epithelial casts in abundance. On December 9th the specific gravity was 1011; there was no albumin present, and a very few granular and epithelial casts. The case was thought to be one of post-natal endocarditis, probably the result of infection from the frequent sore throats and was of common interest on account of the early age of the child, the extremely large heart and the rapid subsidence of the dilatation and kidney symptoms under treatment.

Dr. Graham, in discussing the heart case, thought the condition to be post-natal, in all probability, rather than ante-natal; because it was exclusively left-sided, while ante-natal conditions are, of course, more likely to be right-sided.

Dr. Eshner thought that the marked improvement that had occurred both in symptoms and physical signs also pointed towards a post-natal rather than to an ante-natal condition. He suggested, however, that the improvement in the child's conditions was very largely the result of improvement in its general nutrition. The child was evidently rickety, and the use of a satisfactory diet with coincident improvement in the general nutritive condition would be sufficient in itself to cause marked amelioration in the cardiac dilatation. He believed that the striking improvement reported was probably to a large extent due to general nutritive improvement rather than to the special cardiac therapy.

Dr. Edsall referred to the fact that a very common condition in mitral stenosis is marked tenderness over the region of the apex, this being so common as to amount to a sign sug-

gestive of mitral stenosis in cases in which murmur is absent. This among other signs had at times led to a correct diagnosis of mitral stenosis in the absence of a murmur, as. for instance, in a case reported by Strauss. Dr. Edsall had found the condition frequently present in adults, but, at most, only rarely present in children, and asked whether others had made any observations concerning this tenderness in children with mitral stenosis.

Dr. Hamill, closing the discussion on his heart case, said that he had made no attempt to distinguish between an antenatal and a post-natal condition. He thoroughly agreed with Dr. Eshner in the belief that dilatation was a marked feature in the case. There was distinct evidence of dilatation and of decided improvement in this dilatation, this being especially indicated by the changes in the cardiac dullness.

Dr. L. C. Peter presented a case of **sporadic cretinism** seven years old, which had been under treatment one year. During the administration of thyroid extract (2 grains daily), the child learned to walk and talk, the facial expression changed from that characteristic of cretinism to that of a bright intelligent child, and the general appearance of the child was materially altered.

Dr. Peter also presented a case of **tumor of the cerebellum** in a boy of fourteen. For six months headache was almost constantly present, frequently accompanied by severe and sudden attacks of projectile vomiting and a very marked riginity and spasm of the posterior cervical muscles. His gait was slightly unsteady (not, however, characteristically ataxic) and choked disk was present in both eyes. The deep reflexes were erratic; there were no palsies and forced movements were never observed. He never had a convulsion; a tubercular family history suggested the probability of the growth as being tubercular. Under the iodide treatment the headache seemed to be less constantly present.

Dr. Hand directed attention to the possible danger in doing lumbar puncture in cases such as the one of brain tumor. There are at least four cases of sudden death on record which were probably due to the use of lumbar puncture in brain tumor. The cause of death in these cases is said to be the sinking of the tumor upon the foramen magnum, with pressure upon the vital centers, after the fluid which had supported it has been withdrawn. There was, of course, no especial indication for lumbar puncture in the case shown.

Dr. Edsall, in discussing the case of cretinism, referred to an observation which he had made during the previous sum-

mer while doing some work in the neutral sulphur of the urine. The neutral sulphur is looked upon as as being a fair index of the degree of tissue destruction going on; and its amount in proportion to the sulphates increases if any excess in tissue destruction occurs. In two cases of cretinism he had, however, observed that the relative amount of neutral sulphur, when the patient was on thyroid extract and was certainly breaking down a great deal of tissue, did not increase. In one instance, it was evidently decidedly below the normal. This, perhaps, indicates some marked difference in the oxidative processes in cretins as compared with normal persons.

For Antisepsis of the Nose, Mouth and Pharynx in Scarlet Fever.

℞ Menthol..... grs. iii
Boric acid..... ℥i
Vaselin..... ℥i

M. Sig.—To be applied in the nose;

Or,

℞ Oil of peppermint..... ♏x
Resorcin..... grs. xv
Olive oil (sterilized)..... ℥v

M.—Eight drops to be instilled into each nostril morning and evening.

The mouth should be washed frequently with borated, carbolized, or naptholized solution and the same applied to the tonsils and pharynx.—*New Orleans Med. and Surg. Jour.*

PRACTICAL NOTES

Vaccination.

Experience of more than a century has confirmed and strengthened the teachings of Jenner, except upon the single point of the duration of immunity. Some of the lessons taught by this experience may be summarized as follows:

1. The first lesson cannot be better stated than in the words of the Berlin Board of Health: "Vaccination in infancy, renewed at the end of childhood, renders an individual practically as safe from death from smallpox as if that disease had been survived in childhood, and almost as safe from an attack."

2. The duration of the immunity conferred by vaccination is variable. In many individuals vaccination in infancy, and revaccination in childhood is sufficient for life protection. In a limited number, immunity is lost in five or six years. It is never possible to know with certainty to which class an individual belongs. In the face of an epidemic, therefore, vaccination of all who have not been vaccinated within five or six years, is giving what the lawyers call the benefit of a reasonable doubt. Everyone who has been vaccinated in infancy and childhood should be vaccinated not less than once in adult life.

3. The immunity conferred by vaccination is in direct proportion to the thoroughness with which it is performed, and this is shown with considerable accuracy by the character and number of the resulting scars.

4. Vaccination in infancy alone is not sufficient to wholly prevent smallpox among the adult population.

5. Optional vaccination has not proved sufficient to protect the community from smallpox. Compulsory vaccination is a measure warranted by more than a century of experience.

6. The mild compulsion enforced in this country, by requiring vaccination or evidence of its recent performance upon admission to the public schools should have the hearty support of the parents and physicians alike.—Dr. F. M. Crandall, in *American Medicine.*

Treatment of Chronic Urticaria, or Hives.

The *Medical Summary* states that sodium salicylate and atropine sulphate, which are recommended by Unna as the most reliable remedies in chronic urticaria, often fail to produce the desired effect. Ichthyol, on the other hand, brings relief and cure. It should be given in from 1 to 2 grn. doses to children and from 5 to 6 grn. doses to adults. At the same time an ointment should be applied to the affected parts, or even all over the body. The strength of the ointment should be about 2 dr. of ichthyol to an ounce of petrolatum in children and ½ oz. to 1 oz. of petrolatum for adults.—*Merck's Archives.*

The Treatment of Carbolic Acid Burns and Poisoning.

Dr. Charles Platt, referring to the article "On the Use of Alcohol in the Treatment of Carbolic Acid Burns and Poisoning," in *American Medicine*, May 25, 1901, states that while alcohol is efficient in preventing phenol eschars, its use internally as suggested would be decidedly dangerous. The case cited (when 3½ ounces of absolute alcohol was introduced into the stomach of a child 3½ years old!) resulted fatally, of course. Rodman's patient lived because the alcohol was at once removed by stomach-washing.

For internal administration nothing is more efficient in preventing local injury than vinegar or diluted acetic acid, an agent too little used—in fact, it seems too little known—in this connection. In all cases, however, sodium sulphate should be administered as a chemical antidote to the phenol already absorbed. The physiological antidote will be administered at the bedside.—*Therapeutic Gazette.*

The Parasitic Nature of Eczema.

Bockhart (*Monats. fuer Prakt. Dermat.*) calls staphylotoxin-eczema those cases in which a toxin he names staphylotoxin is produced by staphylococci and which occurs outside of the cocci themselves. Together with Bender and Gerlach he has shown that the cocci contain a substance which they call staphyloplasmin, but which of itself alone does not produce eczema, but may produce impetigo, furuncles or other suppurative processes.—*Postgraduate.*

Disinfection Against Mosquitoes.

In general, it may be stated that to succeed in killing mosquitoes in a closed space with formaldehyde gas, the following definite requirements are essential. A large volume of the gas must be liberated quickly, so that it may diffuse to all portions of the room in sufficient concentration. The room must not have cracks and chinks where the insects will breathe the fresh air entering, especially if these openings are to windward. The room must not have heavy drapery, clothing, bedding, or other fabrics, so disposed that the insects may hide in the folds, away from the full effects of the gas.

In order to compare the merits of formaldehyde with sulphur dioxid gas in disinfection against mosquitoes, experiments were made by burning sulphur and with the liquid sulphur dioxid gas.

The power of sulphur dioxid to destroy all forms of animal life is well known. On account of its destructive action upon fabrics and metals, this agent is of little practical use in the disinfection of dwelling houses, cabins of ships and similar places. This destructive action is due to the moisture which combines with the sulphur dioxid to form sulphurous acid, which is the real disinfecting agent. Dry sulphur dioxid has practically no effect upon bacteria. Our work has shown that very small atmospheres of dry gas will quickly destroy mosquitoes, and we therefore believe that the destruction of these insects may be accomplished in dwelling houses with little danger of injuring fabrics or tarnishing metals. Sulphur dioxid is so far superior to formaldehyde as an insecticide that even the risk should not outweigh the certainty of its action. The gas may now be obtained in its liquefied form, either in tin cans, in siphons, or in iron cylinders, affording very convenient methods of quickly introducing a given amount of the dry gas into an inclosure.—Rosenau, *Microscopical Journal.*

Insomnia in Children.

℞ Urethan.....gr. xxiv
Glycerin.....℥i
Aq. menth. pip. ad.....℥i

M. Sig.—One teaspoonful three times during the day (for a child five to ten years old).—Freyberger, *Med. News.*

ABSTRACTS

A CASE OF HEMORRHAGIC DISEASE IN THE NEW-BORN, WITH PATHOLOGICAL EXAMINATION.

HENRY MACKAY (*Quarterly Medical Journal*, Nov., 1902) says: The case which forms the subject of this communication came under the care of one of us (H. M.) in July, 1901. The history is as follows:

Mary A., married, aged 36, was delivered by forceps of a female child (the seventh) at 8.30 p.m,, on Sunday, July 21, 1901. During gestation she had not felt very well, and for over two months had suffered severely from whooping cough. Of her previous conceptions, three aborted at about three months, six were carried to term, and all—except one who died of bronchpneumonia following measles—are alive and well. Her family history is rather scanty, but her mother and aunt both died of tuberculosis. No history of the hemorrhagic diathesis, either on her side or her husband's—whose family history is good—is to be found. She herself, up to seven years of age, had been subject to "fits," since when she has been free from them.

This seventh child showed signs of jaundice on the Tuesday following birth, July 23d, which grew more marked during the week. On Wednesday, July 24th, a large purpuric patch was observed in the left lower axiliary region and four smaller patches on chest, head, back and left leg. Ecchymoses over malar bones are to be attributed to the forceps. On Saturday evening, July 27th, the mother, on removing the "dummy" comforter, noticed that there was blood on it, but thought nothing of it. On Sunday morning, however, about 4 a.m., she was alarmed to find rather free hemorrhage from the vulva. About 9 a.m. hemorrhage began from the umbilical stump quite profusely, when she sent the child down to me. Various local hemostatic measures were employed but unsuccessfully. I called later in the afternoon, about 5 p.m., and found the bleeding still going on, saturating the clothing, and no signs of improvement. I took four capillary tubes and small glass flask of samples of the blood for examination, and was then struck with the remarkable fluidity of the blood. The linen had become very offensive, even in that comparatively short time, which may perhaps be rightly attributed to the excessive heat during the day. Further examination showed a hemorrhage in the roof of the mouth. Melena occurred the first time during the day, and in the evening four times, at intervals of fifteen minutes or so, black material was vomited. Convulsions supervened at about 9 p.m., and the child died quietly at 10.15 p.m., having lived just eight days.

From the onset of the hemorrhage early in the morning until death it continued freely, and the child died practically exsanguinated. The facts point to the disease recently described as the hemorrhagic disease of the newly born, having apparently no connection with the hemorrhagic diathesis.

PATHOLOGICAL REPORT OF DR. HECTOR.

An autopsy was performed eighteen hours after death. The body is that of a well-developed and well-nourished child dead on the eighth day. It is slightly jaundiced and shows subcutaneous hemorrhages in the following situations: (1) Left side of the chest: (2) front of the chest on the left side; (3) right side of the chest; (4) inner side of left leg; (5) outer side of left leg; (6) left shoulder; (7) left cheek and under left eye; (8) right cheek, especially over the malar bone; (9) left side of forehead; (10) roof of the mouth; (11) slight sanguineous oozings from the vulva and the umbilicus.

On opening the abdomen there was found to be a large hemorrhage into the peritoneal cavity; the source of the bleeding was not discovered; there were no hemorrhages in the mucous coat of the stomach or intestines. The organs appeared normal though pale; the heart and lungs were also pale; there were no hemorrhages into the pleural or pericardial cavities, though these contained a small amount of bile-stained fluid. There were several large hemorrhages under the scalp, also subdural hemorrhages in each temporo-sphenoidal area and over each lobe of the cerebellum. No hemorrhages into the substance of the brain; spinal cord not examined; portions of the organs were removed for microscopic examination and cultures made, as detailed below.

Microscopical examination of the tissues— (*A*) Histological—(1) Liver. Shows no marked deviation from the normal; no evidence of cirrhosis or encroachment on the liver cells. The blood-vessels of the portal tracts appear to be normal; the bile ducts show no proliferation, on the contrary they are not so conspicuous as in the adult. In many places they are represented by columns of closely packed epithelial cells, in which it is difficult to discover the lumen; in other parts the lumen is quite distinct, the duct obviously patent. The liver cells are normal except for a considerable deposit of pigment granules among and within them. Sections stained for fat with Sudan iii. give a negative result. Closer examination of the pigment shows that it is of two kinds.

(*a*) Golden-brown masses varying from the size of a red blood corpuscle downward. These are distributed in and between the liver cells and in places are associated with hematoidin or bilirubin crystals.

(*b*) A greenish-yellow homogeneous deposit in the bile capillaries, differing from the former in giving a green reaction with pot. ferrocyanide and hydrochloric acid. The bile capillaries appear in places to be quite filled with this substance. Spleen, kidney and thymus appear to be normal. Hemorrhage having occurred from the vulva, sections were taken of the uterus, transversely in the upper part. These showed a distinct catarrhal condition of the endometrium,

Sections of the liver and kidney were stained by Gram's method. The latter showed a few cocci in the intertubular capillaries, but no foci of infection were made out.

(*B*) Bacteriological examination.—As the organs were exposed in the course of the section the surface of each was seared with with a broad copper instrument, and through the seared surface a sterile platinum needle was thrust into the tissues. Care was taken in the case of the smaller organs not to approach the opposite surface.

In the case of the heart the blood in the interior was exposed by snipping a flap in the wall of the ventricle by means of sterile scissors and forceps. The cultures were all made in nutrient broth of standard reaction, viz., plus 1.5 per cent. to phenolphthalein.

From the liver, heart's blood and spleen, four tubes each were inoculated, the fourth of each series being placed under anaërobic conditions in a Buchner tube.

From the suprarenal, kidney and thymus, two cultures were made, also two from one of the larger subcutaneous hemorrhages. One of the last was also inoculated anaërobically. Of these twenty tubes six showed growths after twenty-four hours at 37° C.; the remainder continued sterile for six weeks.

Further examination showed that the organisms present were three in number, viz.: (1) a streptococcus; (2) a minute staphylocoocus, and (3) a large coccus with the arrangement of a sarcina.

All three were obtained from the liver; (2) and (3) were present in the films of the heart's blood taken at the section. The streptococcus was obtained in one of the cultures from the suprarenal, and the sarcina from the hemorrhage. Probably in each case the organisms were in the blood.

Several capillary tubes of blood were taken from the heart. One of these was broken into 10 c.c, of broth which, after incubating twenty-four hours at 37° C., showed a free growth of the streptococcus. The remainder were made into a suspension with 10 c.c. sterile broth, 1 c.c. of which was then injected into a young guinea pig with a negative result.

The cultural characteristics of the three organisms isolated were briefly as follows:

(*a*) Sarcina.—Cocci 1.2 *m m* in diameter; arranged in fours and eights, stain readily; grow both aërobically and anaërobically, and both at 18° to 20° C, and at 37°. Produces uniform turbidity in broth: slight sediment but no pellicle.

On gelatine a linear white growth; no liquefaction.

In stab gelatine a dotted growth below and a heaped white growth on the surface.

Agar.—Linear growth; smooth surface; creamy-white color.

Milk rendered acid; first coagulated.

(*b*) Coccus.—Diameter 0.6—08 *m m*; arrangement staphylar; stains readily; also by Gram's method.

In broth it produces uniform turbidity in twenty-four hours at 37° C.; slight deposit; heavy odor; no indol.

Gelatine streak.—Linear white growth; no liquefaction.

Gelatine stab.—Granular white growth in depth; thistle-shaped excavation of the gelatine; no liquefaction.

Agar,—Linear white growth; smooth surface; slight bluish iridescence.

Milk.—rapidly turned acid and coagulated; later the litmus is bleached.

(*c*) Streptococcus.—Diameter 0.4—0.5 *m m*; arranged in moderately long angular chains.

Broth.—Growth rapid; produces uniform turbidity and very slight sediment.

Gelatine streak.—Thin transparent streak; dotted.

Gelatine stab.—Slight film on surface; granular white growth in the depth; discrete colonies.

Milk.—Faintly acid after one week; no coagulation.

No change at end of a month.

From the above it will be seen that the streptococcus closely resembles the common strept, pyogenes, differing from it, however, in its smaller size, and also, apparently, in its power of retaining its vitality in artificial cultures; subcultures were obtained after the lapse of eight weeks.

The coccus closely resembles the staphylococcus epidermis albus of Welch.

The sarcina has not been definitely identified.

Eighteen-hour-old broth cultures of each of these organisms were injected into young guinea-pigs in amounts equivalent to ½ c.c. per 100 grammes of body-weight. In each case the result was negative. Opportunity has not yet occurred of testing them on rabbits or mice.

A FATAL CASE OF ILEO-COLIC INTUSSUSCEPTION.

E. Reavley (*Montreal Med. Jour.*, October, 1901) reports the following case: W. R., male, aged six months, weighing 13 pounds, and well nourished, had never been ill except with constipation for four months just before the present illness.

On July 23, 1901, he was taken ill early in the morning and at 8 p.m. vomited and screamed with pain. At 9 a.m. he passed bloody mucus by stool. I did not see the case until 1.30 p.m., when the vomiting was occuring every fifteen or twenty minutes, and stools containing bloody mucus were being passed at about the same intervals. Pulse, 122; temperature, 98° F. A tumor was felt in the line of the colon and in the rectum.

After giving chloroform, the patient was inverted and the intussusception was quickly reduced by a hydrostatic pressure of 30 inches and external manipulation of the bowel. The parents were then warned of the possibility of return of the condition and of the necessity for immediate operation on the slightest symptoms of recurrence.

On July 30th I was again called to the child and told that he had been as well as usual until 8.30 that morning when the former symptoms had returned in an aggravated form. A tumor was now felt at the anus; it was firm and tense and bled at the slightest touch. Under chloroform hydrostatic pressure failed to entirely reduce it, and the parents agreed to take the baby to town and permit of immediate operation. However, on their arrival, a confrère was called in and he succeeded in frightening the parents so much regarding the operation that they refused to have it undertaken.

July 31st.—The tumor protrudes through the anus at times; vomiting is almost constant and all food is vomited as soon as taken. The pulse varies, 132 and upwards; temperature 98°. Condition rapidly ingravescent. At 11 p.m. the patients father called and said that the baby "was

failing rapidly and would not live until morning." He consented to the formation of a fecal fistula, should it prove necessary, but refused to allow a resection. On calling I found the baby extremely pale, perspiring, lips livid, eyes sunken and surrounded by dark circles. The vomit was greenish and of the color of coffee-grounds; pulse 140 to 143, very weak.

On August 1st, at 4.45 a.m., I opened the abdomen under great difficulty from defective light, etc, The appendix vermiformis was normal in size and position, the cecum very much distended, tense, firm and 2 inches in diameter. Reduction was abandoned as it would have involved immediate resection of irreparably damaged gut. The ileum was seized a few inches from the colon, withdrawn, a fecal fistula formed and the infant hurried to bed; vomiting ceased almost immediately. During the forenoon water was given at frequent intervals and the baby was permitted to nurse in the afternoon; pulse 132, improved.

On August 23d the baby became gradually weaker and died of asthenia. Early reduction by operation either on the 23d or 30th of July would undoubtedly have saved its life.

AN INTERESTING ACCIDENT OF STAINING.

J. O. Cobb (*Medical News*, Nov. 2, 1901) comments as follows: In the winter of 1898, while working with a mount of sputum, I used as a contrast stain methyl instead of methylene blue. . In this amount I noticed a rod about three times the size of the tubercle bacillus and shaded light lilac. In other mounts the rods were constantly present in various sizes, but I paid little attention to them, thinking they were accidental air bacilli. Later, at the Sanatorium at Fort Stanton, New Mexico, I showed these rods to Assistant Surgeon Ramus, who undertook to isolate them. He could never demonstrate them except with the methyl-blue stain and if this were true it was certainly interesting and such a rod, if a bacillus, should be isolated and classified.

In going into the matter thoroughly it was found to be a crystal of the stain. It was noticed that the presence of carbolic acid and heat produced beautiful crystallization and fresh preparations of the stain gave crystals much more uniform in size and much smaller than in old preparations. The crystallization seems to take place only in the presence of an albuminoid substance.

Incidentally in regard to staining sputum it is well to again call attention to the accident of staining with Sudan iii. I acknowledge that it is a good stain for the tubercle bacillus, but it is unreliable. Several have called attention to the crystals found in the mount from this stain; and where we have sputum of a doubtful case Sudan iii. must not be relied on, for it deposits crystals that very closely resemble the bacillus. I have in mind one case with temporary cold and expectoration which was stained with Sudan and it was thought that bacilli were present, but staining with all other methods, cultivating and running through guinea pigs were negative.

It is well to repeat the warnings that laboratory workers have given against the accidents of staining from old preparations of gentian-violet,

methyl-violet, Rosaniline and Sudan iii. In sputum work especially must we use care with these stains. In well-marked cases where the bacilli are plentiful it makes no difference, but where the infection is recent and the diagnosis hard to make we should be prepared to exclude all sources of error and avoid any confusion by being able to say positively that we have, or have not, a tubercle bacillus in the field.

ENCYSTED EMPYEMA.

J. Blake White (*Med. News*, Nov. 23, 1901) says that acute empyema is much more common, especially in children than is generally supposed; is difficult to detect when there is only a moderate exudation and is sometimes overlooked until constitutional conditions or lung perforation results. This latter accident more frequently follows the encysted variety of empyema, a circumstance explained by the more confined character of the cavity and the more yielding nature of the lung tissue constituting one wall of the abscess. Its existence is not so readily recognized by dullness on percussion or absence of respiratory murmur as the books state, and an examination based on these evidences will often fail to discover it. Individuals of strumous diathesis are extremely liable to empyema after a more or less severe attack of pleurisy or pneumonia. It was at one time thought that evacuation of the pus through a bronchus promised recovery, or was the best result that could be looked for. We now know that this natural means of emptying a pus cavity is the worst, as it infects a large area of lung tissue, produces pus pockets in many places and permits septic absorption.

Dr. White gave a detailed report of three cases—the fourth, on account of its similarity to one of the others, was not narrated. Two of them seemed to illustrate how readily an encysted abscess may occasion perforation of the lung. In one case evidences of permanent pulmonary disease, with tubercle bacilli in the sputum, ultimately disappeared when external drainage was established. In this case the drainage tube was retained for about nine months. Resection of the rib was done in two of the cases, but not in the others. In regard to this procedure, he said that while some believe it should be performed in every case of empyema operated upon, his experience led him to regard it as unnecessary as a routine practice. In the very young quite as satisfactory results are generally obtained without resection, as with it. The main point is perfect drainage and if this can be secured without resection it should be done. Such a result may be accomplished by using a rubber tube of sufficient caliber and resistance to maintain drainage as long as required and to overcome the pressure upon it caused by granulation tissue. Whether to resect or not must be determined by the special features of each individual case. Irrigations are to be deprecated except in rare instances. Their routine use is injudicious and sometimes dangerous. This objection does not apply to cases of gangrenous abscesses or to those of long continuance which are discharging pus. At the close of the paper Dr. White exhibited a modification of Beck's rib-shears devised by himself, which he had said he had found very efficient.

QUININE RASH, WITH REPORT OF A CASE.

H. C. Wood, Jr. (*Thera. Gazette*, January, 1902) reports the following: Cases of eruption brought about by quinine, while not by any means rarities, are still uncommon enough to warrant the report of a case which occurred in the service of Professor Riesman at the Polyclinic College of Post-graduates.

Miss A. C., aged 35, occupation laundress, was brought to the clinic with the following history: She had taken two days previously, as a tonic, the following prescription: tinct. nux vomica, 1 ounce; tinct. cinchona comp., enough to make 8 ounces; two teaspoonfuls three times a day. Within a short time after taking the first dose she experienced stinging sensations along the forearm. A short time after this these areas became red. When seen the eruption presented the following appearance: a number of spots equally distributed over the extensor and flexor surfaces of the forearm, regular in outline, almost perfectly circular, from 2 to 5 cm. in diameter, deep red in the center, shading slightly toward the periphery and surrounded by a slight macular rash. The temperature of the skin in the immediate neighborhood was distinctly elevated to the touch. There was at first, according to the patient's description, some induration around the spots, but this had mostly disappeared when patient was seen. Some of the spots had already faded and were copper colored, in contrast to the bright red of those in active inflammation. There was slight itching. Temperature 99⅘°; pulse 88; no marked constitutional disturbances, no involvement of the mucous membranes. A placebo was ordered, and four days later the patient was seen again. The spots had faded to a marked degree, some of them actively desquamating.

He remarks further that quinine eruptions may be conveniently divided into the following groups: The scarlatiniform, the urticarial, the bullous, the purpural, the rubeoloid and the erythematous. Outside of these groups there have been reported isolated cases which cannot be placed in any of these classes.

PEDIATRICS

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EDITORIAL COMMENTS

Differential Diagnosis Between Malignant Endocarditis and Typhoid Fever.

Malignant endocarditis is fairly often mistaken for typhoid fever. In many cases indeed it is only by resorting to the most modern methods of refined diagnosis that they can be certainly differentiated. In the early stages of malignant endocarditis enlargement of the heart cannot always be made out and a murmur is often absent or only occasionally present. Irregularity and rapidity of the pulse, especially when associated with changes in frequency without apparent cause would rather indicate endocarditis. The typhoid rash is distinctive when present but it may not occur, or may occur very late. Likewise petechial hemorrhages would certainly point to endocarditis. Enlargement of the spleen may be present in both affections and the temperature charts of the two may be singularly alike. A continued fever with few symptoms is very apt to strongly suggest typhoid. However, a history of some infection at a recent date may serve to put us on our guard and lead us to consider malignant endocarditis.

The diazo-reaction points rather to typhoid but has also been reported as occurring in endocarditis. The Widal reaction is of great value when it is present, but it is sometimes not obtainable until very late; nothing can be argued from its absence. A careful examination of the blood will throw much

light upon the question. In malignant endocarditis we shall usually find a decided increase in the leucocyte count. It is true that in a few cases the number of leucocytes is but slightly, if at all, increased, but in these cases we shall find a relative increase in the polymorphonuclear leucocytes. On the contrary in typhoid fever the leucocytes will generally be diminished in number and there will be a relative increase in lymphocytes. Besides, we may expect a much greater reduction in the number of red cells in malignant endocarditis that is generally found in the first weeks of typhoid fever.

The diagnosis of typhoid can be absolutely established, of course, when the bacillus typhosus can be cultivated directly from the blood, urine, or feces, as is now sometimes successfully accomplished by skilled bacteriologists. Similarly, the diagnosis of malignant endocarditis can often be confirmed by withdrawing blood *from a vein* under the strictest aseptic precautions and inoculating culture media therefrom. Failure to obtain a positive result is of little value unless the process be frequently repeated. According to Dr. A. O. Kelly (*Penna. Med. Jour.*, January, 1902), "The bacteria most frequently found are the staphylcoccus pyogenes aureus, streptococcus pyogenes and diplococcus pneumoniæ—bacteria that we might expect when we recall that acute endocarditis is most frequently associated with pyococcic infection (pyemia, septicemia, puerperal infection, wound infection, abscesses, osteomyelitis, erysipelas, etc.), croupous pneumonia, meningitis, etc. In other cases, however, the following bacteria have been found: Staphylococcus pyogenes albus, the pneumobacillus of Friedländer, the typhoid bacillus, the tubercle bacillus, the diphtheria bacillus and the gonococcus. The following bacteria that, as far as we know, are unassociated with other diseases have been found also in endocarditis: Bacillus endocarditidis griseus (Weichselbaum and Netter), micrococcus endocarditidis rugatus (Weichselbaum), micrococcus endocarditidis capsulatus (Weichselbaum), bacillus immobilis et foetidus (Fraenkel and Sanger), bacillus pyogenes foetidus (Passet), the bacillus of Gilbert and Lyon, diplococcus tenuis (Klemperer), micrococcus zymogenes (MacCullum and Hastings), bacterium coli commune, and a few others. In certain cases the endocarditis

is the result of a mixed infection—cases in which more than one organism is isolated from the heart lesions, and cases complicating certain well defined infective diseases from the heart lesions of which a microorganism is isolated that evidently has nothing to do with the original infection as, for instance, the isolating of streptococci and staphylococci from the heart lesions in cases of typhoid fever, diphtheria and gonorrhea. These cases have been designated heterologous in contrast to the case of monoinfection designated homologous." T.

Caution Necessary in the Treatment of Measles in Tenements

Measles is regarded by many mothers who live in tenements as a very mild disease. They consider that warmth and exclusion of light are all that is required and that the services of a doctor are superfluous. The result is that the patient is often put in a dark inside room which is overheated and insufficiently ventilated. His resistance is so much the more lowered and he becomes specially liable to some secondary infection, most frequently bronchopneumonia, diphtheria, or tuberculosis. A patient with bronchopneumonia following measles who, in addition, contracts diphtheria is in a wellnigh hopeless condition. Yet this sequence does occur. We are cognizant of four intubations performed within the past two months for laryngeal diphtheria following measles.

In each of the four cases the doctor who was called in when the symptoms of croup became marked, attributed the condition to catarrhal laryngitis complicating measles, and did not administer antitoxin, or even make a culture until the severity of the symptoms made operative intervention imperative. It should be kept in mind that symptoms of croup occurring during measles may not be due to catarrhal laryngitis, but to diphtheria. If the symptoms are at all severe a large dose of antitoxin will certainly be on the side of safety.

T.

ORIGINAL ARTICLES

SCARLET FEVER.

By W. W. Robertson, M.D.,
McComb City, Miss.

I HAVE selected the disease, scarlet fever, as the subject of my paper because we have had sporadic cases throughout the State within the past six or eight months. I have treated quite a number of cases at different times; while some have been very mild types others were more malignant in character.

Scarlet fever, as we know, is an acute contagious disease, and especially characterized by faucitis and a diffuse scarlet eruption, terminating in more or less membranous desquamation.

Historical.—Although it has been claimed that the pestilence of Thebes, 600 B.C., and the plague at Athens, 430 B.C., were each epidemics of scarlet fever, no accurate knowledge of this affection as a separate disease was obtainable prior to the seventeenth century, when Sydenham and his contemporaries described it in a manner which permits its easy recognition as the scarlet fever of today. It pervades the Old World everywhere, having been recognized in England in 1661, Scotland in 1716, Germany and Italy in 1717, Denmark in 1740, and was introduced into North America by shipping in the year 1735. It did not, however, reach South America until 1829, Iceland 1827, and Greenland so late as 1847 (Tyson).

Etiology.—The organism that causes scarlet fever has not been isolated; streptococci have been found in the blood and post-mortem in the glands and kidneys. Whatever the agency, it is the most tenacious of all the contagia, retaining its power to infect for at least a year after the occurrence of a case. It is especially difficult to dislodge from organized substances, such as bedding, clothing or straw, letters and books, and the disease has been communicated to new-comers even after an infected apartment has been thoroughly cleansed and fumi-

gated with sulphur. Physicians have doubtless conveyed it, and the beard and hair are contagium-bearers more frequently than is supposed. Hence, physicians should not wear long beards, and nurses before passing from one case to another should disinfect the hair as well as the rest of the body.

While the contagium itself has never been isolated, there is every reason to believe that the bearer is the exfoliated epithelium. Hence it is not until the desquamation takes place that the disease is communicable, and the ease with which the scaly particles are disseminated through the air and the tenacity with which they adhere to textures readily explain the communicability of scarlet fever and the difficulty in destroying its cause. On the other hand, until the eruption makes its appearance the disease cannot spread. Accordingly it is not likely to be communicated to those exposed prior to this stage. Therefore, children promptly removed from association with the disease after its discovery and kept apart generally escape it.

The route of communication is probably, for the most part, the respiratory tract, although the alimentary canal may also convey it. In confirmation of this, is the fact that in two instances at least, in England, it has been conveyed by milk, the milk having been infected by being exposed for a time in an apartment occupied by patients. In one instance the disease appeared in six out of twelve families supplied from the infected source. The readiness with which milk absorbs volatile substances kept in the same refrigerator apartment and retains their flavor is quite in accord with such transmission.

Children of either sex are more subject to the disease because a single attack, as a rule, protects against a second. Infants, however, even under exposure, are less liable to the disease, and it would seem, too, that adults who have escaped exposure during childhood are less liable.

I have never had scarlet fever and have been exposed many times to the most virulent forms. In my own experience the disease is most common about the age of seven. There is no morbid anatomy peculiar to scarlet fever. The eruption fades after death unless there happens to be hemorrhagic extravasation.

The period of incubation varies greatly. It is sometimes as short as twenty-four hours, and again as long as twelve days. More frequently, perhaps, two to four days. At the

end of this time there is usually a very short prodrome, sometimes none at all. Vomiting occurring either as an initial symptom or a couple of hours later is often present; more rarely a convulsion; still more rarely a chill. Sore throat is early complained of, and high fever is conspicuous; the face is flushed, and the temperature rapidly rises to 103°, 105° or even 108° F. and the pulse to 110, 120, or more.

The eruption appears, as a rule, on the second day, and it generally happens that if it is not present at the first visit it is sure to be found at the second. Its striking character is its uniform redness. It is like a diffuse, broadly spread blush, appearing first upon the neck and chest and extending thence rapidly over the whole body, so that at the end of the third day it has completed its invasion. The appearance of a child covered with scarlet fever eruption is very characteristic. It has been well compared with that of a boiled lobster in its bright redness. It is further characterized by the readiness with which it disappears on pressure and the promptness with which it returns after the pressure is removed. It is, however, no sooner completed than it begins to fade, and does so with great rapidity in the order of invasion.

The eruption is at times "patchy" but never presents the cresentic or otherwise irregular edges or mottled appearance of the eruption of measles.

Vesicles are even found with turbid contents, producing "scarlatina miliaris." The eruption is sometimes entirely absent from the face, hence no conclusion should be based upon its inspection only. The thorax and inner surface of the thighs are more favorable sites. The eruption when severe is constantly accompanied by an itching or burning more or less intense and there is a feeling of slight roughness at times.

The tongue is red at the edges and top, furred at the center, but though the fur stands out papillæ present themselves in distinct points producing the appearance known as the "strawberry tongue," which is regarded as more or less characteristic.

The rest of the mouth, including the roof of the palate and tonsils, is bright red, as though the eruption extended to it, as it doubtless does. After a few days the fur desquamates leaving the tongue red and raw-looking.

With the abatement of the eruption comes desquamation and it is generally proportionate to the intensity and extent of

the former. When the eruption is slight the little scales are scarcely noticeable and the closest examination is necessary to discover them, while when there is a vivid and extensive eruption the amount of desquamation is enormous. Glove-like casts of the fingers, including the nails, are sometimes exfoliated, and the bed contains each day numerous flakes of epiderm which have come off, while many days are required for complete separation of the dead skin. Great care should be taken in gathering it up, as in the desquamation resides the contagium. On the other hand, when slight it should be carefully sought for, as it has great diagnostic value

At the same time it should not be regarded as something peculiar and confined to scarlet fever, for every dermatitis is followed by desquamation, as especially exemplified in the exfollation which follows an attack of erysipelas on the face or irritation by iodine or mustard.

The urine from scarlet fever proper is like that of fever cases generally—scanty, high-colored and precipitating uric acid and urates on cooling. The chlorides are diminished during active fever. The duration of simple, uncomplicated scarlet fever ranges from three to fourteen days, according to the degree of severity. Its decline is, however, gradual as compared with the suddenness of onset. Such is a general picture of scarlet fever in its simple, uncomplicated form, so characteristic that early in its history it received the name "scarlatina simplex." Owing to further combinations of symptoms there have been added three other varieties—the anginose, the malignant form, scarlatina maligna, and the hemorrhagic form.

In the anginose variety the throat symptoms are conspicuous and very severe.

In no well developed case is there an absence of throat redness. On the other hand, there is intense soreness with swelling of the fauces and tonsils, giving rise to extreme dysphagia. The neck may be so swollen as to fill up the space beneath the jaw. There may be a false membrane involving the fauces, the posterior pharynx, the nasal cavities, the trachea and bronchi. The throat may present all the features of a severe diphtheria. Abscess and destructive ulceration may result, which may proceed even to perforation of the carotid artery and rapid death result therefrom.

The inflammation almost certainly ascends the Eustachian tubes producing severe ear symptoms.

The false membrane is usually the result of the intensity of the inflammatory process, due to the specific cause of the disease and not that of diphtheria, but there may be true diphtheritic membrane containing the Loeffler bacillus. Especially is this true of the cases in hospitals for the infectious diseases.

The streptococcus pyogenes is perhaps the most frequent cause of the throat inflammation. It has been found also in the skin, the blood and the glandular organs in fatal cases. Scarlet fever has indeed been called a streptococcus infection.

Follicular tonsillitis may also be one of the forms of sore throat.

In the "malignant" variety there is an overwhelming intensity of the cause, which may result in almost immediate prostration and death of the patient, giving no time for the development of the usual symptoms, or these may be so feebly manifested that they present no distinctness. When the disease is not immediately fatal there is intense adynamia, the heart and pulse sharing it. The breath is rapid, the circulation feeble, the skin dusky, the eruption imperfectly developed, the temperature is very high, reaching 105° to 108°; there is delirium which may pass into coma, and convulsions may occur. The pulse ranges from 120 to 150.

In the "hemorrhagic" form there are more or less extensive hemorrhagic extravasations, epistaxis and hematuria. It attacks, for the most part, the feeble and badly nourished, and like the previous variety, is almost invariably fatal. Epidemics of scarlet fever vary greatly in severity. In some all the cases appear to be mild, in others all are of extreme severity. Families of children may be exterminated. Again, a mild case may give rise to one of the most intense forms.

I will briefly speak of the complications which are most frequently met with, first, acute nephritis. It usually makes its appearance after desquamation is more or less complete, in the second, third, or fourth week. A trace of albumin, which is common at the height of the fever, is not to be confounded with that of nephritis and probably does not predispose to it. The rationale of its production is not precisely understood. It is commonly ascribed to cold or a draught of air upon the skin which is young and tender after the desquamation. But when it is remembered that the mildest cases are as susceptible as the most severe and probably more so, and that children have

been found barefoot in the street with the eruption upon them and yet have escaped Bright's disease,it must be admitted that we do not know all about it. The fact that the disease is usually more severe the earlier it appears, would go to show that the specific poison has something to do with it. It is true,too, that with the skin functionally dead the complemental work thrown upon the kidney increases its susceptibility to the ordinary causes of nephritis, of which cold is one. It is to be remembered also that other diseases in which the skin is seriously affected predispose to nephritis. This is pre-eminently true of burns and scalds. However it may be brought about, the result is generally a typical example of parenchymatous or tubal nephritis, although instances of interstitial inflammation are also found. Every grade of severity is met with, but early recognition increases our power to control this severity.

The majority of cases thus recognized got well, and I have known recovery to take place after suppression of the urine had lasted several days. The clinical picture is that of acute nephritis otherwise observed and its consideration may be deferred until the disease is studied. This complication was formerly overlooked, but in modern times cases are more closely watched for it. The possibility of Bright's disease without albuminuria must be borne in mind. In almost all cases we have glandular enlargement; the majority of cases subside but some go on to destructive suppuration with ulceration through the carotid artery.

Arthritis is met with in a number of cases, closely resembling acute rheumatism. The term might be compared with that of gonorrheal rheumatism; each is the result of the specific cause of the disease and not of the cause of rheumatism.

One of the most serious complications is that of otitis, due to the result of extension of inflammation from the throat through the Eustachian tube to the middle ear and is associated with the streptococcus. It has been known to develop after recovery from exposure to draughts or dampness; suppuration and possibly perforation of the membrane of the tympanum are common, and, more rarely, destructive suppuration of the mastoid cells. As a consequence of one or both of these, it always causes impaired hearing or a total deafness.

Various nervous affections develop as rare complications. Among these may be mentioned, chorea, convulsions, hemiplegias; and Osler mentions two cases of progressive paralysis

of the limbs due to ascending spinal paralysis or multiple neuritis and subacute ascending spinal paralysis as coming under his observation.

We may have thoracic complications, as endocarditis and pericarditis, during the convalescence of scarlet fever. Endocarditis is not always discovered, and a few unexplained chronic valvular defects may have originated in this way and thus be accounted for.

Pericarditis is likely to be overlooked; pleurisy may also occur and, more rarely, pneumonia. Scarlet fever is easy to diagnose if all the symptoms are well developed. It is the mild cases which escape detection. If the eruption is absent it is sometimes impossible to aver the presence of the disease. If there be doubt as to the eruption, close watching will sometimes discover signs of desquamation, in the shape of branny scales beneath the underclothing or in the stockings. In the absence of this the question must sometimes remain forever unsettled.

In other cases the development of a nephritis unfortunately sets the matter at rest. If there has been exposure to the contagion it is best to regard every case of sore throat as a possible case of scarlet fever and treat it accordingly. While the throat affection of diphtheria closely resembles at times that of scarlet fever, where this symptom is at all conspicuous in scarlet fever, the eruption is not generally wanting, or is, at least, present to such an extent as to permit recognition of the disease. The fact that the one or the other of the two is prevailing may settle the question. It must be admitted, too, that the two affections may succeed each other and even perhaps coexist, both events being, however, exceedingly rare. The coryza and cough in measles characterize the stage of invasion, while the eruption occurs later than in scarlet fever. When it does come it is very different, being at first, at least, in patches bounded by irregular and cresentic outlines, more uneven and elevated, and is conspicuous in the face where the scarlet fever eruption is faintest. The absence of sore throat is distinctive of measles through its occasional presence in mild degree must be admitted.

Rotheln or rubella has an eruption more like that of scarlet fever than is the typical measles eruption, but it is not usually followed by desquamation. There are no uncomfortable throat symptoms, and the constitutional disturbance is

much less. It is possible, too, that these affections may succeed each other, as is true of real measles and scarlatina.

Acute exfoliating dermatitis resembles scarlet fever during the eruption, but the exfoliation in the former is not like that of scarlet fever.

As in erysipelas, it has more the appearance of scales and crusts before it is thrown off and there is more apt to be a moist surface left behind followed by a second exfoliation. There are no throat symptoms, and the tongue characteristic of scarlet fever is wanting.

The eruption of belladonna both on the skin and throat resembles that of scarlet fever but it is of short duration and without constitutional symptoms.

Prognosis of scarlet fever varies greatly; there are epidemics of great severity in which the mortality is large, and certain fulminating cases are beyond treatment, yet most physicians of large experience in surveying their work will recall that the percentage of deaths in their scarlet fever cases has not been large and that it has been greatest among the very young. The percentage of deaths is put down at from 3 to 10 per cent. in mild epidemics and 20 to 30 per cent. in severe ones. The mortality is greater in hospitals than in private practice. In the fulminating cases death takes place before a chance for treatment is offered; but in the next grade of cases characterized by high temperature and severe sore throat symptoms a survival of five or six days generally means recovery unless the supervening complications carry off the patient. Among these, nephritis and glandular swelling, passing over into abscess, are conspicuous, but even of those so afflicted a majority recover.

TREATMENT.

The treatment of scarlet fever is mainly symptomatic, associated with vigorous nursing, which will guard against complications.

The patient should be isolated, if possible, upstairs; if there be no upstairs, off into a room where all communication is cut off from the rest of the family who have not had the disease. Remove all carpets, lace curtains and such other furnishings of the room as can be gotten along without. The temperature of the room should be uniform, while effective ventilation should be secured. The diet should be liquid as long as the fever persists, and the best of all liquids is milk,

though light broths are admissible with an abundance of water.

If the fever is high, say above 103°, cool sponging may be resorted to, but it must be remembered that high temperature in this disease is of short duration and incapable therefore of the mischief it may cause in the long-continued febrile diseases like typhoid fever.

Very high temperature, such as 105°, with meningeal symptoms, may require the bathtub or cold pack, but the temperature of the former should not be as low as that for typhoid fever. It is safer to put a patient in a bath at 90° and gradually reduce the temperature. The warm bath allays the irritation of the skin, but this is as well accomplished by inunction with cold cream or sweet oil, and this unguent is important for another purpose as soon as desquamation takes place to to keep the scales from flying about and spreading the contagium.

An ice-cap may be applied to the head if the temperature is high, and especially if there are head symptoms. While cool applications are allowed during fever they are positively contraindicated in its absence, as they may aid in the development of complications of nephritis and otitis. Fever is best controlled by these measures, but it is desirable to give medicines which tend to the same purpose, especially if they dispose to diuresis as well. Hence, the officinal solution of citrate of potassium or of the acetate of ammonium combined with the spirits of nitrous ether with a little flavoring syrup is useful. The throat symptoms require to be treated according to the degree of their severity. Iron and potassium chlorate may be added to the above mixture. Constipation should be guarded against and frequent aperients are indicated. If more active local measures are needed the throat may be sprayed frequently with peroxide of hydrogen (1 to 3), or with a weak bichloride of mercury (1 to 5000 sol.), or carbolic acid spray (1 to 50 or 60). I prefer the peroxide of hydrogen. For local application (spray) cold water applications and even ice to the exterior of the throat are very comforting to the patient.

Very efficient and soothing is a bandage for the throat, with pockets opposite to the tonsils, into which pieces of ice are placed and the whole covered with a dry towel; or little India rubber ice-bags may be similarly used.

In adynamic cases stimulants and restorative treatment in general are indicated.

The proper treatment of the throat tends to save the ear, but should the middle ear become involved the membrane should be watched daily and if the tension is extreme perforation practised, even more than once, if needed. Too little attention has been paid to this complication and, if the circumstances permit, an aural surgeon should be called in. The prophylaxis against nephritis should be most careful, whatever may be the immediate cause of the renal involvement, it is certain that cold often becomes its exciting cause. Hence, the patient should be scrupulously guarded against draughts and, tedious as it may sometimes seem to mother and child, "six weeks in the room" is a precaution which will avert many cases of nephritis.

In addition to the milk diet, which is an efficient prophylactic against nephritis, I am in the habit of giving a moderate dose of digitalis, say 3 to 5 drops two or three times per day to aid in maintaining a free circulation of blood through the kidney.

Jonathan Hutchinson, F. R. S., General Secretary of the New Sydenham Society, has requested Messrs. P. Blakiston's Son & Co., of Philadelphia, the American agents of the society, to announce the publication of "An Atlas of Clinical Medicine, Surgery and Pathology," selected and arranged with a design to afford, in as complete a manner as possible, aids to diagnosis in all departments of practice. It is proposed to complete the work in five years, in fasciculi form, eight to ten plates issued every three months in connection with the regular publications of the Society. The New Sydenham Society was established in 1858, with the object of publishing essays, monographs and translations of works which could not be otherwise issued. The list of publications numbers upwards of 170 volumes of the greatest scientific value. An effort is now being made to increase the membership, in order to extend its work.

A CASE OF SPINA BIFIDA.*

By F. C. Wilson, M.D.,
Louisville, Ky.

I DESIRE to briefly report a case of spina bifida, which I mentioned at our meeting four weeks ago, and present a photograph of the child for your consideration. Five weeks ago I delivered Mrs. N., aged 23 years, of her first child. The baby was born very much cyanosed, hydrocephalic, sutures widely open, fontanelle large; head measurement 17

inches in circumference. A spina bifida was located about the waist line, probably extending over two or three of the vertebræ.

The mother stated that she believed this condition was traceable to a very severe fright of some kind which she sustained about the fourth month of utero-gestation. She thinks

* Reported to the Louisville Medico-Chirurgical Society.

that because of this fright this arrest of development has occurred.

The child is still living, the sac is becoming more prominent, but an effort is being made on the part of nature to extend the skin over it, and this effort has almost succeeded; the head is somewhat reduced in size.

The question naturally arises, whether anything can be done looking toward relief in this case. I have known one child of this kind to live for five months; this baby is now five weeks old. Whether it is worth while to make an effort to close over this sac or not is a serious question. In this particular case, where there is a tendency to hydrocephalus, it seems more rational not to make an effort to put any pressure on the sac for fear of increasing the cerebral pressure, and I believe it would be wise to await further developments.

DISCUSSION.

Dr. Louis Frank.—Some time ago I showed to this society a tumor from a spina bifida that I had removed. That child died on the fourth or fifth day after the operation from tetanus. The tumor itself was very foul, and I dare say tetanus was due to infection which was brought about in this way. I happened to be in Frankfort, Ky., to operate upon another case, and was asked to see this case of spina bifida. The sac was small and I did not think communicated with the canal itself; it was of the lipomatous variety, which I thought could be removed without opening the spinal canal. I operated upon the child and found there was no direct communication with the cord itself. The opening in the column was very small, probably not larger than my finger, although the tumor was as large as a fetal head, undergoing decomposition due to imperfect blood supply, and had sloughed at its outer edge where it was not covered with skin.

The results in cases where there is only a spina bifida are not so unfavorable as we sometimes think. We must bear in mind that we may have a tumor communicating with the canal with continuation of the nerves into the tumor, or we may have a tumor springing from the membranes and composed largely of fatty tissue,—what is known as a lipomatous meningocele, instead of a true meningocele, which contains the nerves.

In the case reported by Dr. Wilson I would be inclined to await later developments.

Touching one point mentioned by Dr. Wilson—maternal impressions: He states that the mother of this child had a severe fright and speaks as if this had something to do with the production of the spina bifida and the hydrocephalus. For my own part I do not believe in maternal impressions. I do not see why a fright should have any effect upon the growth of the fetal cells or why alterations should take place in the cells themselves or in the various layers which we have in the fetus, bringing about this or any other condition so frequently attributed to maternal impressions.

Dr. S. G. Dabney.—In regard to maternal impressions: My oldest brother (now deceased) who was professor in the University of Virginia, wrote the chapter on maternal impressions in Keating's Enclyclopedia of Diseases of Children, and I heard him remark just before he began his work that he did not believe there was anything in it. As was his custom when he had much writing to do,he went to Washington and visited the Surgeon-General's Library to collect material, etc., and before his investigations were finished he became thoroughly convinced that there was something in maternal impressions, and his article, when it finally appeared in the work referred to, was not what he intended writing; his ideas were completely reversed by the investigations made at that time.

Dr. J. G. Cecil.—The case reported by Dr. Wilson is the only birth I have witnessed where the child had a spina bifida. The case appears to be hopeless judging from the extent of the aperture at the time of birth, and the size of the opening seems to be growing larger all the time.

Dr. F. C. Wilson.—When this baby was born the place where the opening now appears was really below the level of the back. The opening is about 2½ x 1½ inches; you can feel the defective laminæ on either side; the membranes are thin and you can see portions of the cord.

One peculiar feature about the case was that the lower limbs were perfectly limp at the time of birth, but this has gradually improved. First the right leg became drawn up and the toes could be moved, and within the last two weeks the left leg could be moved slightly.

I have kept it thoroughly clean and it has been dressed daily. There has been no suppuration; there was slight crusting and a little odor at one time but this soon disappeared.

ANOMALIES OF THE PREPUCE IN THE NEW-BORN.

By Wm. J. Greanelle, M.D.,
New York.

THE discussion of adherent prepuce in the Louisville Clinical Society, as reported in Pediatrics for December 15, 1901, suggests to me the reporting of a case nearly as marked as was the case of Dr. Marshall.

In May, 1901, I delivered a woman of a healthy male child weighing 9 pounds. During the general inspection after the birth I noticed the long and almost completely closed prepuce and spoke to the father, advising circumcision. For no particular reason the family delayed from one week to the next, as the child was able to void urine, although with difficulty. The baby, although healthy, well-nourished and with bowels moving well, was extremely restless while sleeping, day or night.

While examining the child during a visit to the mother some two months after its birth I noticed that the penis became erect—a real priapismic-looking erection—as soon as my hand touched his abdomen. The mother informed me that this occurred nearly every time she changed the baby's napkins. Examining the prepuce again I found that it had much elongated and that for the passage of the urine there was an almost undiscoverable opening on one side half-way between the corona and the end of the prepuce.

I advised prompt circumcision, to which the parents consented. I performed a complete circumcision, using three fine cat-gut sutures, and the night of the day of operation was the first quiet night's sleep the child had had since birth. Primary union resulted and the child's restlessness has disappeared.

Such report may be made over and over again. It is for some unknown reason true that most male children are born with elongated or adherent prepuces, or both. It should therefore, in my opinion, be the rule in practice to advise circumcision in *all* cases, or certainly in a majority. Persistent and

serious nervous reflexes come from the long and adherent prepuces.

When we consider in addition the improved local hygienic conditions in adult life reached by circumcision we have an additional strong argument for this operation.

A year or more ago I was called upon to circumcise a young man 23 years of age, as he had suffered some annoyance and had been advised by another physician to have the operation done. His case showed the extreme bad results possible from failure to circumcise at an early age. His prepuce was tight and much too short, being bound down firmly about the edges of the meatus by tough adhesions. The entire inner surface of the prepuce was similarly adherent to the glans and it was with some difficulty and much bleeding that I was able to free it. Incidentally the glans was extremely compressed, being flattened out against the corona so as to be about one-third its normal longitudinal diameter. He stated that he had never known it to bulge out any during erections and after the operation this observation was confirmed. With the short and adherent prepuce the glans had never had a chance to expand properly. This condition became corrected in time, and I saw him lately when he reported that he now had full distention.

Similar conditions sometimes cause a great deal of unexplainable restlessness and nervousness in girls, and this is usually overlooked. A case in point is that of a small girl, about 2 years old, whom I had attended through the vicissitudes of bottle-feeding and teething but whom I had not brought into the world. The child was always extremely restless at night, tossing about and waking frequently, and this persisted when her teething caused no trouble and her digestion was perfect. The mother insisted that there was something the matter with the child, and that it was not "mere naughtiness" that made her wake at night. I agreed to be called at any hour. The very next night the child had one of her severe attacks of restlessness. I was called about midnight and found the child asleep but throwing herself about her crib bodily—first to one side, then to the other and then in well-marked opisthotonos. I watched her for nearly an hour and then left, telling the mother I would inspect the genitals in the morning.

On inspection I found the vulva closed by a septum stretching completely across for the length of the nymphæ, and that the urinary stream passed out over a small free edge just

below the clitoris. I slit this down with a sterilized coarse needle and the child's night troubles disappeared. I would add that there was no hymen within this septum.

University Heights.

The Cruelty of Foie Gras.

The sentimentalists who devote so much energy towards the suppression of experimental scientific research conducted upon the lower animals will find an abundant harvest of absolute wanton cruelty on all hands if they care to look for it. How many anti-vivisectionists, we wonder, eat foie gras? Do they know that it is made from the diseased livers of geese which are deliberately brought to death's door by treatment that is diabolically cruel? The unfortunate birds are cooped up indoors in boxes so arranged that the head alone can be moved. They are then crammed with a rich diet, which is forced down their gullets. Under these circumstances the liver soon becomes affected, and in about three months has attained an enormous size from fatty degeneration. The larger the liver the more successful the process, The most valuable livers are those of a green tint; that is to say, fatty livers impregnated with bile pigments. The centre of this trade is Strasburg, which sends out annually about £150,000 worth of this delicacy. A recent petition to the civic authorities of London to exclude foie gras from the banquet recently given to the Prince of Wales has excited the livliest alarm among the merchants of Strasburg, inasmuch as, after Paris, England is their next best customer. Three months of forced feeding is required to bring the unfortunate birds to the proper pitch of organic degeneration, so that their livers may tickle the palate of fat gourmands. Of a truth, any antivivisectionist who eats foie gras is committing an act of farcical incongruity. On the one hand he is eating a toothsome morsel procured by a course of prolonged torture practised upon a harmless domestic fowl, while on the other he is railing at scientific men whose aim in experimentation is the highest conceivable—namely, the alleviation of suffering among mankind. Meanwhile, Strasburg flourishes and science is tied hand and foot in the United Kingdom.—*Med. Press and Circular.—Merck's Archives.*

SOCIETY REPORTS

NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Stated Meeting, November 14, 1901.

W. L. Stowell, M.D., Chairman.

An Automatic Siphon for Separating Cream or Top-Milk of Any Desired Fat Percentage.—Dr. Henry L. Coit, of Newark, N.J., exhibited a number of siphons, and recommended one devised by Mr. Charles A. Meade, of Newark. This siphon is made of glass tubing having a caliber of ⅜ inch and the suction arm, which goes into the milk bottle, has a funnel-shaped end. The quantity of cream or top-milk to be left in the bottle by the siphon is determined by the length of the outer arm of the siphon, and this may be varied at will, either by the use of a telescopic device or by attaching pieces of glass tubing of appropriate length.

Mr. Charles A. Meade, the inventor of this siphon, demonstrated its action. The siphon is first filled by pouring water or milk into the funnel-shaped end; the open end of the outer arm is then closed with the finger, and the long arm of the siphon is lowered to the bottom of the milk bottle. On removing the finger from the end of the outer arm, the siphon begins to draw off the lower part of the milk, and continues to do so until the level of the top-milk remaining in the bottle is the same as the level of the lower end of the outer arm of the siphon.

Dr. Henry Dwight Chapin said that while it seemed to be a very satisfactory siphon for the purpose for which it was devised, he had long ago discarded all siphons for the removing of milk, as some difficulty was experienced in practice in keeping the siphon as clean as it should be, and nursery-maids, if not closely watched, were prone to start the siphon with their mouth. Cream having been proved by numerous assays to be a variable substance, he had given up prescribing so many ounces of it, preferring to use all of the cream and a certain percentage of the skimmed milk because of the greater uniformity of this mixture. He had ascertained by experiment that in the first 9 ounces of cream that had risen in the natural

way the ratio of fat to proteids was 3 to 1, and that in the first 15 ounces this ratio was 2 to 1. This was the basis of his now well known method of removing so many ounces of top-milk with a little tin dipper.

Dr. H. L. Coit said that in his city the milk had a uniform fat content, and with the present strict laws regarding milk he did not think cream should be a very variable product.

Safety-pin in Child's Vagina.—Dr. Sara Welt-Kakels exhibited a safety-pin that had been removed from a child's vagina after various methods of treatment had failed to control a bloody leucorrhea of long standing.

Removal of Penny from Esophagus.—Dr. Welt-Kakels also exhibited a skiagraph which had proved useful in enabling her to locate a penny in the esophagus of a child of 20 months. The penny had been removed with the coin-catcher.

The Value of the Widal Reaction in Children.—Dr. Milton A. Gershel was the author of this paper, which was based upon observation made in Dr. Koplik's service from March, 1898, to October, 1901. In applying the test the method of Dr. E. Libman had been used, the dilution being 1 in 20, and in most instances, the material for the test being dried blood. There were 670 examinations on 199 cases, 84 of the cases being typhoid and the remainder various other febrile disorders. Of the 84 typhoid cases, 81 gave the Widal reaction, 11 of them by the seventh day. The author's results corresponded quite closely with those reported by Blackader, i.e., the Widal reaction was obtained in 70 per cent. before the second week. In the 115 other febrile disorders no positive Widal reaction was obtained. The speaker said that the Widal test was more important in children than in adults because of the difficulty ordinarily experienced in making the diagnosis of typhoid fever in children.

Dr. H. Koplik said that a child in the hospital recovering from a multiple neuritis had developed a slight fever, and although there were no symptoms indicative of typhoid, the Widal reaction had been obtained. The case ran a very mild course.

Dr. H. W. Berg said that while Cabot had stated that in 5,000 cases the Widal reaction had been present sooner or later in 97 per cent. of cases of typhoid in both children and adults, he was personally of the opinion that in the early diagnosis of this disease far more assistance was to be derived from the detection of a diminished leucocyte count.

Primary Intestinal Tuberculosis in Children; Its Frequency and the Evidence of Its Relation to Bovine Tuberculosis.—Dr. DAVID BOVAIRD, Jr. presented a paper with this title. He said that the percentage of tuberculosis in cattle varied in different abattoirs from 12 to 18 per cent. The tuberculin test had shown in some places from 15 to 30 per cent. The chief danger was from the milk of tuberculous cattle. Ernst had found the tubercle bacillus in 5 per cent. of 114 samples of milk taken from cows in which there was no visible tubercular lesion of the udder. The proportion of tuberculous cattle having tuberculous lesions of this organ was quite small, some authorities placing it at 3 per cent. or less. Undoubtedly the action of the digestive fluid was sufficient to protect against tubercle bacilli in milk unless these were in large number or the digestive organs were in an unhealthy state. He had been able to find only sixteen reported cases in which the relation between the development of the intestinal tuberculosis and the infection of the milk with tuberculosis was clearly shown. A good rule for the guidance of the pathologist in determining the source of the tubercular infection was that the oldest and most advanced lesions are found in the lymph nodes connected with the tract through which the infection entered. He had collected 236 cases from German writers, with 29 reported cases of primary tuberculosis of the intestine, or 12 per cent. Again, French writers had reported 128 cases with no instance of primary tuberculosis of the intestine; the English had reported 748 cases with 136 examples of primary tuberculosis of the intestine, or 18 per cent., and 369 cases had been gleaned from American writings, with only 5 cases, or 1 per cent., in which the tuberculosis was primary in the intestine. The autopsy records of the New York Foundling Hospital showed 250 cases of tuberculosis in children under five years of age with only 5 primary in the intestine. This represented 11 per cent. of the autopsies done in that hospital.

Dr. W. H. PARK thought it was doubtful if the point at which the infection originally entered was marked by any recognizable lesions. Even the finding of a primary tuberculosis in the intestine was no evidence that the infection had been derived from tuberculous milk; it might just as well have come from the ingestion of human tubercle bacilli. During the past summer he had fed four calves proved not to be tuberculous at the commencement of the experiment, with large quantities of sputum from the consumptives of St. Luke's Hospital. The animals had reacted to tuberculin after three months, but eventually no lesions had been found post-mortem.

Dr. THOMAS S. SOUTHWORTH said that his own records at the Nursery and Child's Hospital tallied very closely with those

at the New York Foundling Hospital, for they showed a percentage of 10 or 11. The statistics seemed to indicate a much greater liability to tubercular infection abroad than in this country. In our own country the statistics seemed to warrant the conclusion that it was safe to dispense with pasteurized milk in cold weather provided the milk supply was known to be good and the children were two or three years old.

Dr. Rowland G. Freeman said that one was not justified in drawing any conclusions from reports of cases of a single child dying of tuberculosis after having been fed on tuberculous milk. There was more force, however, in the reports of a number of children becoming tuberculous in a certain school supplied with milk from a tuberculous herd. As animal experiments showed that the introduction of tubercle bacilli into the intestine was often followed by tubercular infection of the respiratory tract, it was probable that many cases of respiratory tuberculosis had their origin in an infection of the intestines.

Dr. Bovaird, in closing the discussion, said that even granting that animals infected through the intestine show advanced pulmonary lesions, it must be admitted that these cases were rare, whereas when animals are fed on bovine tuberculous matter it was the rule to find the intestine first infected and the respiratory tract later.

Sublamin.

This is a trade name of ethylene-diamine-mercury sulphate and appears in the market in the form of red-colored tablets containing 1 gm. (15 grn.) each. It is recommended as a substitute for corrosive sublimate in hand disinfection; while corrosive sublimate makes the hands harsh and often causes eczema in a 1-1000 solution, this salt is claimed to be free from irritation even in a 2 per cent. solution. It is to be used in a 3-1000 strength (three tablets to a liter or a quart of water).—*Merck's Archives.*

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, December 19, 1901.

HERMAN KNAPP, M.D., Vice-President, in the Chair.

Remarks on the British Congress of Tuberculosis and the Prevention of Tuberculosis.—Dr. E. G. JANEWAY introduced the general subject of the evening, tuberculosis, by some remarks on the work of this Congress. He spoke of the admirable arrangements of the Congress and of the many representative men from foreign countries, thus giving the Congress almost an international character. He quoted Dr. Koch as stating that there were 226,000 persons in Germany, over fifteen years of age, who were so far advanced in pulmonary tuberculosis as to require hospital care, and yet only 20,000 could be accommodated in the sanatoria. Koch also stated most positively his disbelief in the identity of human and bovine tuberculosis, and expressed the opinion that the number of cases of primary intestinal tuberculosis was no more than could be accounted for by hereditary transmission. Dr. Janeway in this connection reported the development of tuberculosis of the lymph nodes in three children in one family, in two children in another family, and in one child in a third family, all having been served with milk from a sick cow. Before the health authorities had been able to make a thorough investigation this cow had died. These cases were very suggestive, as careful search had failed to show any other source of infection in these families. Dr. Janeway called attention to the fact that in the last fifty years in Great Britain the mortality from tuberculosis had been reduced 50 per cent. Dr. Janeway urged that more sanatoria be built for consumptives, and called attention to the danger arising from expectorating into the pocket handkerchief, as well as to the impropriety of pronouncing the sputa of a person innocuous merely because one examination had shown an absence of tubercle bacilli.

Tuberculin.—Dr. E. L. TRUDEAU sent a communication in which he spoke of his experience with tuberculin. He said that he had been using tuberculin for the past ten years, both for diagnosis and treatment, and he had never known it to exert any bad influence on an existing tuberculous process. It should not, however, be used when there is fever present, not only because the result was unsatisfactory but because it might, under these conditions, possibly intensify the secondary process. Tuberculin was required in a comparatively small num-

ber of cases, i.e., in suspected cases of incipient tuberculosis. In this class it had usually enabled him to make a diagnosis before this would have been possible by the symptoms or the physical signs. Its therapeutic sphere was limited. It was chiefly of value in just those cases which were amenable to, and were preferably treated by climatic and hygienic treatment. There were great variations in individual susceptibility to tuberculin. If given in an apyretic case in which there was no reason to suspect mixed infection, and in doses so small as not to produce a rise in temperature, it was free from danger. After tolerance to quite large doses had been acquired, the treatment should be discontinued for several months, and then, if susceptibility had returned, the tuberculin should be used again.

Difference Between Bovine and Human Tuberculosis.—Dr. Theobald Smith presented a paper on this subject. He said that it had first occurred to him that bovine and human tubercle bacilli were not identical while watching, some ten years ago, the effect of these two kinds of bacilli upon guinea pigs. By the year 1897 he had obtained a sufficient number of pure cultures to warrant him in testing bovine and human bacilli on cattle, and the results of these experiments justified him in claiming that human and bovine tubercle bacilli differ both morphologically and in virulence from human tubercle bacilli. In children the type of the disease approximated that found in cattle, but this similarity should not be taken as proof that they are identical in their etiology. In 1898 he had stated his belief that while a few bacilli in the intestinal tract were probably harmless, a large number of them must be considered as a menace. The student of comparative etiology was disposed to believe that ordinarily the pathogenic action of a bacterium was confined to a certain large group or race, and that it only sporadically exerted its action beyond these limits. We had no right to assume the indiscriminate transfer of bovine tubercle bacilli to man, and hence we should not accept Koch's sweeping statement. There was some evidence that bovine bacilli had been isolated from human beings, and that the successful transfer was uncommon and required certain conditions as yet but little understood.

Dr. Herman M. Biggs was of the opinion that, from the human sanitary point of view, we were warranted in ignoring the production of tuberculosis by infection from cattle. There was good reason for believing that the bovine tubercle bacillus infected the human being with difficulty. The speaker then quoted statistics from the New York City Board of Health to show that in certain crowded sections of the city 10 per cent. of the population were infected with tuberculosis, as against ¼ to ½ of 1 per cent. in better quarters of the city. He inferred

that this was because of the unwholesome character of the milk used in the poorer districts. While all authorities in this country agreed that primary intestinal tuberculosis was rare, being about 1 per cent. in this city, the statistics of Great Britain gave the proportion as 10 per cent. Dr. Biggs said that at the present time he did not feel that there was much reason for restricting tuberculosis in animals so far as human beings were concerned, though the stamping out of bovine tuberculosis was no doubt an important agricultural problem. As regards the public health, this question could only assume importance in connection with disease of the udder.

Dr. W. H. Park described an experiment that he had recently made and which showed that, under ordinary circumstances, human bacilli did not infect calves. Four calves, having been proved to be free from tuberculosis, were given a daily ration of 1 or 2 ounces of human sputum rich in tubercle bacilli. After five months the animals were killed and were found free from tuberculosis.

Origination of Tuberculosis from Cow's Milk.—Dr. A. Jacobi opened the discussion on this topic. By numerous citations from the literature he showed that apparently the cases of infection with tuberculosis from milk were not numerous, but that, nevertheless, a number of well authenticated cases had been reported. He believed that the tubercle bacilli could be absorbed through the unbroken mucous membrane of the child's intestine. The frequency of primary tuberculosis of the peritoneum in children, the fact that it was almost always localized and that it usually preceded instead of following pulmonary or general tuberculosis seemed to support this view. He was far from being in accord with Dr. H. M. Biggs regarding the restriction of bovine tuberculosis, for to him it appeared to be a subject of vital importance.

Dr. W. P. Northrup disagreed with Dr. Jacobi regarding the bearing of peritoneal tuberculosis upon the question of primary tuberculosis of the intestine. In his 125 autopsies on tuberculous children at the New York Foundling Hospital he had found 13 cases in which the only tubercular process was in the lymph nodes around the trachea, and in only 3 cases out of the entire number did the oldest process appear to be in the mesenteric lymph nodes. According to his experience tuberculous infection in children usually began in the lymph nodes around the neck and trachea, and then successively involved the lungs, the liver, the spleen, the peritoneum, the kidneys and the brain.

Dr. David Bovaird, Jr., said that in a later series of 125 autopsies at the New York Foundling Hospital on tuberculous children he had found only two cases in which the primary infection had apparently been in the intestinal tract. Adding Dr. Northrup's series of 125 cases there were 250 autopsies at this hospital on tuberculous children, with only 5 cases of primary intestinal tuberculosis. It seemed to him, therefore, that the position taken this evening was perfectly sound.

Acetanilid Poisoning.

Cases of poisoning with acetanilid are not very infrequent, especially in children. Dr. Philip Brown (*Am. Jour. Med. Sciences*, cxxii, 7) reports a fatal case. The patient, a man of 37, took six "headache powders," each containing 10 grn. of acetanilid. He was found delirious, complained of abdominal pain, vomited and was slightly jaundiced. He was taken to a hospital; his temperature rose to 100.2° F., the lips and nails became intensely cyanotic, respirations shallow and frequent. The urine, of which 10 oz. were passed on admission, was nearly black in color and strongly alkaline in reaction. After the second day complete suppression of urine supervened, and six days later the man died.

Contrary to current conceptions, the patient showed general hyperesthesia, not anesthesia, the reflexes were increased and sensory as well as motor functions retained to the end. Acute nephritis, acute progressive jaundice and hemorrhage from the bowels were also present in this case.—*Merck's Archives*, February, 1902.

Obituary.

On January 19, Dr. Edward Cramer, professor of hygiene in the University of Heidelberg, died suddenly in Aachen, aged 39 years.

Dr. G. Garibaldi, professor of surgical anatomy and operative surgery, died recently in Genoa.—*Phila. Med. Jour.*

BOOK REVIEW

DISEASES OF THE DIGESTIVE ORGANS IN INFANCY AND CHILDHOOD; With Chapters on the Diet and General Management of Children, and Massage in Pediatrics. By Louis Starr, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Consulting Pediatrist to the Maternity Hospital, Philadelphia, etc. Third edition, rewritten and enlarged. Illustrated. Published by P. Blakiston's Son & Co., 1012 Walnut street, Philadelphia. 1901. Price, $3 net.

So great have been the advances that have been made in pediatrics during the past ten years that the author has found it necessary to practically rewrite the first edition of this work which appeared a decade ago.

The scholarly attainments of Professor Starr are so well known that it is scarcely necessary to do more than call this work to the attention of our readers. It commences with an introductory section of 100 pages on the general management of children; this includes a fairly comprehensive treatment of the principles governing modification of milk in artificial feeding of infants. Following this are chapters on simple atrophy, scorbutus, rachitis and lithemia, grouped under the general heading, "Diseases Produced by Improper Food and Imperfect Nutrition," constituting Part I.

Part II is devoted to diseases of the digestive organs themselves. The various affections of the mouth, pharynx, stomach and intestine are entered upon, and most minute directions as to treatment set forth in an elegant and practical manner. The diet lists for children given in connection with different diseases will be appreciated by the student and general practitioner.

The last part of the work treats of tuberculosis of the mesenteric glands, affections of the liver and affections of the peritoneum. If any adverse criticism could be offered it might be said that perhaps the author is unduly conservative in regard to to the surgical treatment of appendicitis and intussusception. The index is very complete. The style of the press work is a credit to the publishers and the proof-reading has been most carefully done. T.

PRACTICAL NOTES

Care of the Mouth.

Perhaps no part of the body is so often neglected as the mouth: especially is this noticeable in the case of children. A mother who will religiously bathe her child and keep its body sweet and clean will often fail to clean its mouth. A new-born infant should have its mouth washed after each feeding; a soft cloth wet in a weak solution of boracic acid should be used for this purpose. If this were always done, we should rarely find a case of infantile sore mouth.

After the teeth come and the mouth is large enough, a small, soft brush should be used; the teeth and mouth should be thoroughly cleansed at least twice daily.

In illness, where sordes and mucus accumulate rapidly, and where the tongue and lips are parched and stiff, attention is needed every hour. The mouth should be kept moist, and the same treatment carried out through the night as through the day. Boracic acid solution, listerine, lemon juice, glycerin and distilled water are all refreshing and soften the tissues. Where the lips are chapped or fissures appear, a lubricant of cold cream or sterilized vaseline should be applied. Where the gums are spongy or soft and bleed rapidly a few drops of tincture of myrrh added to pure water will help to harden them. Small squares of old linen or soft gauze should be used instead of a brush where one is ill or weak. These should be immediately burned after use.

Every part of the mouth should be cleansed; behind the wisdom teeth, the roof of the mouth and under the tongue. Lemon juice and water will remove the fur from a thickly coated tongue. Where the teeth are sensitive, the water should be slightly warm.—*Southern California Practitioner.*

The Treatment of Enuresis.

While this condition is very common in young children, the results of the ordinary methods of treatment employed by the average general practitioner who gives to every patient a few drops of tincture of belladonna, are very poor.

Though the causes of enuresis are manifold, a certain lack of tone of the vesical muscle is usually present, whether due to weakness, anemia, adenoids, indigestion, local irritation, increased irritability of the nerve centers or of the peripheral nerves, etc. Most important in the treatment of enuresis is the improvement in the child's general condition, by exercise, diet, and, above all, daily cold bathing. This alone in some cases will cause a cure. Such children should not drink any water after supper, and but one glass of water at supper. If phimosis, balanitis, or preputial adhesions exist, they should be treated, but where circumcision is not distinctly indicated, enuresis will persist after operation.

The drug of most use in treating enuresis is atropine, often better combined with strychnine, in constantly increasing doses until symptoms of poisoning appear. The dose should be decreased gradually, being increased again should enuresis recur. Then the process of gradual reduction should be repeated. This has rarely been known to fail. Fluid extract of rhus aromatica or of rhus glabra has been of service in some intractable cases. In the few cases in which the condition is due to highly acid urine, salol and boric acid have rapidly brought about recovery. During the day the child must be taught to control the vesical sphincter voluntarily, a fact often forgotten. Punishment is always useless; while very neurotic children will need rest and absolute freedom from all excitement. In the great majority of cases at least one hour's exercise daily in the open air, diet, little water after 6 p.m., increasing doses of atropine and a daily cold bath will effect a cure in a few weeks.—*Therapeutic Monthly.*

Vaccination.

We believe that carelessness is a mild term to apply to some of the things concerning vaccination. Thus, we are told that certain vaccinators have performed this little operation on no less than 300 persons in a single day. Think of that! Can it be true? Say the physician works sixteen hours without a minute's rest. He would vaccinate about one patient every three minutes. To say that good work can be done in such express time is bosh.

To vaccinate properly and safely, the following should be the routine:

1.—Scrub the arm thoroughly without antiseptics. The latter interfere with the success of the vaccine.

2.—Scarify with an instrument known to be aseptic.

3.—Wipe off with aseptic materials the blood and epithelial debris produced by the scarification.

4.—Apply the virus.

5.—Use a shield only to enable the patient to leave the office without waiting for the wound to dry. Instruct him to remove it the following day. Shields are in reality dirty things. They retain secretions and collect dirt.

6.—In their place use as a subsequent dressing an aseptic dry compress, which should be changed from time to time according to the indications afforded by other surgical lesions presenting like physical conditions.

7.—After the constitutional symptoms of vaccinia have subsided, and if the wound is not progressing favorably, it is permissible to make use of antiseptic dressings, though the latter had better be avoided, unless the indications for their use are well defined.

8.—Instruct patients that vaccination wounds require the same care as that of surgical lesions in general.—Editorial in *The Hahnemannian Monthly.*

The punishment of the antivaccinationist has been gravely proposed, but if smallpox keeps up its ravages upon the unvaccinated, these poor victims may soon cry out that they have been sufficiently punished by the disease itself. In one city there have been reported examples of such natural punishment in the families of four antivaccinationist physicians. There is a peculiar fitness in this that reminds us of some La Rochefoucauldian maxim. The newspapers chronicle almost daily the fact that some member of the antivaccination society is down with smallpox. The crime comes to notice with the added line that his wife and three children have also been seized. The duty of the State is imperative to protect minors. When the chief medical authorities of such cities as Philadelphia and Chicago can say that not a smallpox death has occurred in the properly vaccinated, the community is authorized to command compulsory vaccination and to punish the obstreperous ignorance of those who wilfully scatter the disease.—*American Medicine.*

ABSTRACTS

THE TREATMENT OF SEVERE DIPHTHERIA.

JOHN BIERNACKI (*Edinburg Med. Jour.*, Nov., 1901) says the principles of treatment are as follows:

1. To keep the local lesion clean, and so far as may be, free from secondary microorganisms.
2. To neutralize the toxine.
3. To counteract the toxic relaxation of the vessels with the primary fall in blood pressure.
4. To avoid heart failure.
5. To maintain the temperature.
6. To encourage renal excretion.
7. To prevent or allay vomiting.
8. To hinder if possible the development of grave paralysis.

The treatment of the local lesion: Generally speaking, the degree of toxemia is proportionate to the extent and thickness of the membranous exudation. In cases of pharyngeal and nasal diphtheria the best local treatment is to wash out the affected cavities periodically. In hospital, this is commonly done with boracic lotion, a glass syringe being used, For children who struggle, a 4 ounce ball-syringe is preferable, as the hand, when holding it, more easily follows any movement of the head. The beneficial results of this treatment are, that the cavity is kept clean, and septic organisms are washed away from about the lesion. It is also a great practical gain that the period of infectivity is distinctly shortened. Boracic lotion very occasionally has an irritating effect on the mucous membrane of the pharynx, which remains sore, raw and bleeding until the treatment is stopped. In these cases salt solution may be substituted. It has been alleged that syringing increases the chance of otitis. Comparative observations made do not confirm this. The spray as a substitute for the syringe is ineffective.

The treatment of secondary streptococcal infection. Strictly speaking the consideration of mixed cases of infection is foreign to the subject of this paper. Such cases, however, are too common to be entirely ignored. While the weight of clinical evidence is in favor of the view that unmixed cases are the graver, the additional infection has, of course, its danger.

The neutralization of the toxin: Antitoxin probably produces its effect by combining with the toxin to form a neutral substance. Consequently the blood pressure rises. Under specially favorable conditions the extent and rapidity of the rise is remarkable.

If antitoxin could always be given in an adequate dose before the specific poison had initiated cardiac degeneration there is weighty reason for believing that further treatment would be of very minor importance. Statistics, as shown by the vaccination controversy, will not convince the

prejudiced; but the figures published from time to time of the results obtained with diphtherial antitoxin are sufficiently significant to convince those who keep an open mind.

In spite of the efficacy of the antitoxin treatment under suitable conditions there is room for supplementary methods. Indeed, the necessity for them remains as great as ever, because inadequate and late doses of antitoxin enable many cases to survive until the third and fourth stages, without protecting them from the dangers involved. This is the probable explanation of the recent greater frequency of death from gradual heart failure, and the increased incidence of paralysis among cases treated by antitoxin.

Treatment other than antitoxic, directed against the primary fall in pressure: The object is to prevent physiological disturbance resulting from the fall in pressure, and especially to maintain the free excretion of urine. Strychnine must be placed first among the remedies in this stage. It should be given at the very outset. The power of preventing cardiac degeneration in febrile diseases has been attributed to it. In diphtheria it may indirectly have this effect if it improves the tone of the arteries, and by raising the blood pressure, aids the excretion of the toxin. Using hypodermic tabloids which contain 1-120 of a grain, he prescribes a quarter four-hourly for a young child. Next in merit comes caffeine, which has been stated to cause an increased flow of urine as a special local effect Digitalis is dangerous. Its cumulative effect is felt in the following stage when an increase in peripheral resistance may be a factor to the failure of the ventricle. It is a point in treatment that sudden movement or exertion is inadvisable even in this stage if the type of the disease is severe.

The treatment of heart failure, with the secondary fall in pressure: The secondary severe fall in blood pressure, from failure of the ventricle, is of course dangerous, and treatment calculated to increase it cannot be adopted with impunity even when the object is to relieve the strain on the ventricle. Some years ago he prescribed nitroglycerin to relieve exceptionally early and severe anginal oppression, and the alarming effect was one of the considerations which drew his attention to the important part played by a fall in blood pressure in the diphtherial morbid condition. On the other hand, the blood pressure cannot be safely raised, because the dilated ventricle is already working with difficulty against the low tension in the aorta. From this it follows as an important practical point that methods which raise the blood pressure by constricting the vessels, although they may be beneficial in the second stage, may cause death in the third. Digitalis has been mentioned in this connection. Although its action has been stated to be partly cardiac, it only produces a slight increased tonicity of the pulse, followed by accelerated failure of the ventricle. Saline infusions are also dangerous at this time, because they cause not only a distinct but a quick rise in pressure, during which the ventricle may fail. What then can be done for the patient? Alcohol is here the chief agent and should not be given earlier. He generally prescribes 1½ oz. as a minimum quantity for a small child. This is given in two-hourly doses with the feeds. If there are successive critical attacks of syncope, ether and a hypodermic syringe are kept by the bedside. When the failure of circulation is marked the lower end of the bed is raised

about a foot by means of wood blocks. In those cases where gradual recovery occurs and the heart is once more working satisfactorily it must not be taken that the ventricle is in its normal condition—the patient is at rest and there may also be the favoring condition of a blood pressure still somewhat below normal. Before allowing the patient to sit up, the heart should be carefully examined for dilatation, and even when none is found ordinary methods of life ought only to be resumed gradually and with caution in regard to sudden movement and exertion.

The treatment of apyrexia: Wrapping the patient in blankets and the like is useless. There must be an actual application of heat to the surface of the body, as by a number of hot bottles. In a critical emergency the best result is obtained by holding blankets close to a fire and using them as hot as possible, in frequent relays. Owing to the low vitality of the cutaneous tissue when the fall in blood pressure is severe great care must be exercised in employing even moderate heat, or an injury in every way comparable with a burn may be caused.

The treatment of oliguria and anuria: Some of the measures mentioned under other heads are indirectly relevant in this regard. In all severe cases the quantity of urine passed daily should be charted. An almost certain but restricted prognosis can be based on the record, for so long as the urine is not running down in quantity very markedly the patient is safe. Exceptions are very rare. When only a few ounces are passed in the twenty-four hours he orders a very large poultice to be applied to the loins night and morning. If no effect is produced and the condition of the heart warrants it, the advisability of a saline infusion may be considered.

Dietetic treatment and the prevention of vomiting: Persistent vomiting associated with cardiac dilatation is with good reason dreaded in severe diphtheria. It is a condition that will tax every resource of the practitioner and also the patient skill of the nurse. The cardinal point is, that the vomiting deprives of water as well as nourishment; vomiting is therefore a potent factor in the causation of anuria. Cases for dietetic treatment may be divided into several classes:

1. Those in which there is both persistent vomiting and diarrhea. Here, administration of food being impossible either by mouth or rectum, the only available measure seems to be the subcutaneous infusion or injection of saline solution. Use repeated small injections (in order to avoid a sudden rise of blood pressure) in one case.

2. Those in which water only is retained by rectum. Order 1 pint of water at blood heat to be given by the gravitation method, through a soft rubber catheter passed well up the rectum.

3. Those in which nutrient enemata are practicable, while even water by mouth is still rejected. Under such conditions he commonly prescribes over-zyminized milk or bovril; four ounces six-hourly is the usual quantity given in the same way as the water. After twelve hours or longer a few drops of water are tried by mouth, and if retained the quantity is gradually increased.

4. Those in which a sufficiency of water—say 5 ozs. two-hourly—is alone retained by mouth. Hard, zyminized meat suppositories are ordered four-hourly. They are more certain of retention than any of the other kinds he has tried, and are less seldom rejected than the enemata.

5. Those belonging to the last class who have retained several feeds of water. Half an ounce of zyminized milk is added to a feed, an equal quantity of water being withdrawn. The proportion of milk to water is then gradually increased until the patient is taking ordinary zyminized milk, when the suppositories are discontinued. In making a step upwards from water whey is sometimes used with success. In other cases junket is given at times, as distant as possible from the water feeds. Beyond milk, the first addition is generally Benger's food, which is partly digested during preparation.

It is to be remembered that vomiting in diphtheria tends to persist. When a case is doing well and some dietetic error induces sickness it may be necessary to go far down in the scale outlined before anything is retained and it may take days to recover the lost ground.

Too much stress cannot be laid upon the importance of nasal feeding in severe cases, when the patients do not take sufficient food or fluid. It is not too much to say that every second infant not nasally fed receives an insufficient quantity of both. For nasal feeding a No. 6 soft rubber catheter should be used, with a glass funnel, as in washing out the stomach. The point of the tube should be at least half way down the esophagus when feeding is commenced. For nasal feeds milk should always be predigested.

The treatment of paralysis: Medicinally, very little can be done. Strychnine by hypodermic injection is a common prescription and, later, galvanism is used. When there is difficulty in swallowing or the patient coughs on or after taking liquids or solids, nasal feeding should be immediately adopted and continued until the condition has passed away. One other point may be emphasized. During the earlier part of the stage of paralysis, even if it be slight, localized and stationary, absolute rest should be the golden rule of treatment.

The first few days out of bed after a severe attack of diphtheria are the only safe test of complete recovery—not merely because paralysis may yet supervene or recur, but still more, owing to the possible resistance of latent heart weakness. It is a time when over-caution on the part of the medical adviser, nurse and patient is impossible.

INFANTILE PLEURISY WITH EFFUSION.

W. T. English (*Med. News*, Nov. 16, 1901) says: There are many difficulties in the way of a thorough physical examination of the baby thorax. The pose and covering favorable to best results are almost never realized. Needful quiescence is wanting, and because of the small area of the infant thorax, the employment of the immediate methods of auscultation and percussion are precluded, or are rendered of little service. Persisting in the immediate methods of percussion, the laying on of heavy hands awakens a resistance through the external sense of feeling and brings about a tissue tension which changes the resulting note. The application of the side of the head to the child's thorax brings in play the sound conducting power of the head bones, and the audible phenomena belonging to the entire side are thus made confusing.

If a case of infantile pleurisy with effusion be investigated systematically, the history of chilliness. if secured at all, will be found to have exhibited an intensity ranging from slight chill to severe rigor. A casual glance at the fever chart of forty-eight hours will betray extensive excursions and even suggest septic processes. The fever is irregular and remittent; the pulse, always without rhyme or reason until the period of puberty, sustains its reputation. Pain cannot be definitely located, but is intimated in a pantomimic way and given a very vague abiding place. The visualizing analysis of inspection loses its value as a means of differentiating pleurisy with effusion from pneumonia, as loss of mobility is common to both; and again, the respiratory experience of the infant chest is too limited to be trustworthy. Flattening of the intercostals or distention is duly observed in a few cases but flattening is rarely appreciable, and fluid sufficient to cause bulging does not often accumulate in the infant thorax.

Displacement of the heart-beat is seldom demonstrable in the extremely young, but if it can be it merits attention. The sign is most valuable in left-sided effusions. Vocal fremitus is not often observed in the infant chest and the respirations are accelerated in proportion to the neurosal conditions rather than with the pressure of the fluid. Neurosal symptoms are emphasized to the degree of epileptiform seizures and the ultimate manifestations in the presence of purulent effusions have been those of meningitis. The respiratory action should be estimated during slumber or in quiescent wakeful periods.

The auditory phenomenon which may also appeal to touch—friction—is not intensely developed and when present is evanescent and must be found without delay or it will evade detection. Influencing all auditory phenomena is the peculiar subtympanitic note residing in the child's thorax. Immediately over as well as around the fluid within the pleura percussion may secure a clear sound. Flatness belongs to massive effusions and the tone elicited is a compromise between the tympanitic and the dull note. In using the light stroke, the tactile sense of resistance is sacrificed. The heavy stroke delivered upon the thorax of the infant would awaken a response from the abdomen or stomach. An important fact often overlooked is the purely physical one, that fluid is a good conductor of sound, provided the sound be properly transmitted and through material which has good conducting qualities. The air vesicles are not good transmitters, and so long as these intervene between the bronchial tubes and the fluid the tubular sounds cannot travel. However, only a meager amount of fluid is required to collapse the infantile alveoli and produce atelectasis. The tubes continue some time thereafter to maintain their lumen and resist the pressure. These conditions impart to the percussion note dullness instead of flatness, modify tactile and vocal fremitus, contribute bronchophony, transmit bronchial rales and crepitations, thus sustaining the delusion of pneumonia. The clicking of coins upon the infantile pleuritic effusion is transmitted much better through the fluid than over the normal vesicular lung structure. If the circumscribed area be delineated it will not be discovered necessarily in the lower portion of the chest but may appear encysted in other localities. Adhesions may so perfectly surround it that change in position has no effect upon it.

It is only when the effusion is extremely large that the curve of Ellis and Damoiseau can be defined. Small areas of fluid will escape detection and often the diagnosis will be incomplete.

Having arrived at a suspicion of fluid, the diagnosis can only be determined by the aspirating needle. Moreover, it is the only sure method of determining the character of the fluid. In a few cases, aspiration is at once diagnostic and a measure which is conducive to cure. By the with drawal of a very small amount of the simple effusion, absorption has been promoted. If the fluid is purulent it should be removed without delay in order to prevent an empyema with lasting damages to the thorax, if not death to the patient.

In casting about for diagnostic means by which to attain the desirable and needful certitude, the radioscope has been faithfully appealed to, but in vain. One reliable aid is ever near at hand—the exploring needle. The ordinary hypodermic needle is never efficient. A large needle is required, but it need not be over 1½ inch in length. One precaution is to have it small enough to enter between the ribs without extending the wound unnecessarily. If the first puncture fails to secure fluid. a second should follow in forty-eight hours. If the general symptoms or a previous puncture should intimate the probability of purulent fluid or pus the needle adopted should be appropriately large.

PERCENTAGE MODIFICATION OF COW'S MILK FOR INFANT FEEDING.

Edward Hamilton (*Am. Jour. of Obstet*, Oct., 1901) reports the following:

Method.—Multiply the quantity of milk mixture wanted by the per cent. of fat desired, and divide by the per cent. of fat in the cream used, equals amount of cream. Multiply the quantity of milk mixture wanted by the per cent. of proteids desired, and divide by 4, the per cent. of proteids in the skimmed milk: this quantity less the amount of cream equals the amount of water or other diluent to be used. Add 3 drams (level tablespoonful) of milk sugar for every 10 ounces of mixture, and alkalinize by lime water or soda.

Example.—Five bottles of 8 ounces each equals 40 ounces, quantity desired.

Formula: 4–7–2, Gravity cream 16 per cent.	Ozs.
Cream	10
Skimmed milk:	10
Water	20
Total	40

Milk sugar, four level tablespoonfuls.

The cream used is the ordinary skimmed or gravity cream obtained by the setting process. One quart of fresh milk of average percentages is placed in a glass jar and this upon ice. At the expiration of six hours

about 6 ounces of a 12 per cent. cream can be obtained, and after twelve hours about 5 ounces of a 16 per cent. cream.

The necessity for pasteurization or sterilization is in inverse proportion to the attention which has been paid to the foregoing factors—cleanliness and freshness. The digestion, capacity and assimilation of each infant is the problem to be met and worked out in each individual case.

The principal index of a child's prosperity on modified milk, or, for the matter of that, the breast, is its gain in weight and the number and character of its stools. To thrive an infant must gain at least 4 ounces a week; if not, it is being improperly nourished, is sick or going to be sick. If one loses steadily in weight it is a grave danger signal. Much can be learned from the stools, in fact, more than from any other means, and they are really the indices for any change in the elements of the milk. One or two bowel movements a day are normal and more should be looked upon with suspicion. The color of the normal stools of a breast-fed infant should be known to us all, and one on a well modified milk should be of nearly the same character. Lack of sufficient fat causes constipation and a more or less clay-colored stool, while too much fat causes yellow, greasy-looking movements of greatly increased frequency. The green stools so often seen show an excess of proteids, or the baby got its milk too fast and the casein had not been digested making an excellent culture medium for the germs which produce the green color. A highly offensive, fetid odor is due to the putrefactive processes of the proteids, while the fermentation of starchy foods gives a musty, sour smell, with increased number of movements which are apt to cause excoriations of the buttocks. White particles usually seen in the green stools are small masses of undigested casein, but care should be taken not to confound them with very similar-looking particles seen in fatty stools. The putrefaction of proteid food causes poisonous ptomaines with elevation of temperature and other constitutional symptoms. The fermentation of starchy food causes colic and diarrhea, but seldom any constitutional symptoms.

A CASE OF APPENDICITIS.

Frank W. Garber (*Thera. Gazette*, Jan., 1902) reports as follows: The case which I wish to bring to notice is that of a boy of 5 years, whose previous history had been without pathological event. He was taken suddenly with pain in the abdomen which was referred to the umbilical region. There was vomiting and some looseness of the bowels; the face was somewhat drawn, and had the expression of one suffering pain below the diaphragm. There was at the time of my first call no tenderness over the appendix at the pathognomic point. There was a slight elevation of temperature. The picture was very suggestive of appendicitis, but I could not determine positively. The next day there was marked improvement, and the child's parents sent me word that it would not be necessary to see him. Three days later the mother called at my office for medicine, stating that the boy was not doing well, and that he still complained of pain. Fearing that the trouble was appendiceal, I suggested that I see the boy instead of sending medicine. I found that the picture of appendi-

citis had grown more distinct during my absence, this being the fifth day of the disease. The abdomen had become somewhat tympanitic; the child had more fever; the face was paler; the bowels were moving frequently, and the evacuation was an almost clear and glairy mucus, a feature I had before observed in those cases of appendiceal abscess where the abscess is situated low in the pelvis. There was difficult urination; there was little or no tenderness over McBurney's point. Under chloroform and by rectal bimanual palpation I was able to outline a small tumor lying low in the pelvis on the right and near the bladder. Immediate operation was advised and accepted. An oblique incision over the mass was made, beginning just above Poupart's ligament and extending upward and outward about 2½ inches. Close to the bladder and deep in the pelvis a small and fluctuating tumor was found connecting with the appendix above. After walling off carefully the mass was incised and about 2 ounces of thin and not very offensive pus was evacuated. The mass was adherent to the bladder, into which it would soon have spontaneously evacuated, as the bladder wall was so thin as to pout into the abscess cavity after it had been wiped out. After mopping the pus cavity thoroughly it was packed with iodoform gauze. No attempt was made to remove the appendix.

Recovery from the operation was without incident, but on the third day following it the little patient developed a well marked case of measles. Under the strain of the frequent coughing accompanying his newly developed trouble the already weakened wall of the bladder gave way, and for over a week he passed all his urine through the fistula thus formed. This necessitated frequent changes of dressing and added greatly to his distress. The little patient, however, met all these trials with fine stoicism and an obedience to nurses which was rewarded by final and complete recovery. In four weeks from the time of operation the patient was discharged.

HYPODERMOCLYSIS IN PEDIATRIC PRACTICE.

W. C. Hollopeter (*Phila. Med. Jour.*, Dec. 7, 1901) says: Briefly my technique in the application to children is about as follows: In afebrile cases such as are found in general atrophy, wasting as following the infectious diseases, the solution should be at least 115 or 120° and delivered to the tissues at 106°. This temperature must be sustained throughout the procedure. The injection may be made in very young children through a large hypodermic syringe, or if a suitable apparatus is obtainable, by gravity. I have found in young children the most satisfactory way of administering it is with the old-fashioned, now abandoned, large antitoxin syringe which holds 1 to 2 ounces. This, after being thoroughly sterilized by boiling, is filled with the normal saline solution of the proper temperature and may be injected into the flanks or into the inner surface of the thigh, above the knee, or preferably near the great trochanter, on the outer aspect of the lower extremities, this being the area of the least sensibility in children. I have selected this spot as being the point of freedom from pressure when the child is lying down. Frequently it is necessary to benumb the skin by the application of a piece of ice for a few

minutes. In some cases I have used a common hand-ball atomizer, and spray the spot with sulphuric ether, which benumbs the skin sufficiently for the insertion of the needle, the only painful part of the operation. I might add that the low condition of the nervous reflexes in children that have been wasted by disease have never been such as to cause pain. Frequently I have timed myself in giving the injection and it is generally advisable to consume five to ten minutes, to empty 1 to 2 ounces of solution in the subcutaneous areolar tissue. The gravity bottle, which at first was universally employed, I have not found very convenient for a good many reasons. First, because the fluid enters so very slowly that the temperature becomes too low, and you lose the thermic influence for good. This loss of temperature, however, may be overcome by using the water-bath for the fluid and thus sustaining the heat, or by having the delivery tube coiled in a hot-water bag, continually sustaining the temperature. It is never necessary to introduce the fluid with a large syringe so rapidly as to produce a swelling, which necessarily means pressure and pain, such a condition ofttimes resembling a hematoma. When the tissues are starved by the loss of blood from the hemorrhage or wasted by long sickness they will drink up the fluid much more quickly than when the body is full of fluid and toxins, as we find in acute nephritis. In such cases the rapidity of inhibition of fluid must vary with the nature of the case. Ofttimes the tissues are overwhelmed by a large quantity of fluid as given to the patient rapidly, yet we wish to dilute and eliminate the toxic fluid chiefly through kidneys or skin. In such cases I precede the hypodermoclysis with a glycerin enema, which drains the tissues and affords a more rapid entrance to the subcutaneous injection. The quantity of fluid injected in young children has usually been too large. I have found marvelous results in the application of 1 to 2 ounces. My application of hypodermoclysis has been most useful in the following diseases of early life: anuria, usually found in the first three weeks of life, due to deposit of uric acid crystals in the tubules of the kidney from various causes—surface-chilling, etc.; various forms of uremic coma encountered in the different stages of nephritis, following the eruptive diseases; Shock: resulting from intestinal intoxication; depression following any acute febrile disorders incident to any specific diseases, and atrophy following malnutrition.

Its chief fields of usefulness are in hemorrhage in the new-born, from the genitals or umbilical cord; in purpura; in cases of general wasting from intestinal disturbances, and especially the toxemias associated with the acute eruptive fevers, scarlet fever and diphtheria claiming an especially high degree of usefulness. In syphilis and in tuberculosis it is a therapeutic measure which aids very materially the use of other means to effect restoration.

PEDIATRICS

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EDITORIAL COMMENTS

Ulceromembranous Angina Associated with the Bacillus Fusiformis of Vincent

Papers and notices on this subject have appeared in foreign books and journals since 1889, and is probably due only to accident that so little attention has been so far paid to it by American workers. We note with pleasure and interest a useful and instructive description of twelve cases from the Good Samaritan Dispensary of this city by Dr. Jacob Sobel and Dr. Chas. Hermann (*N. Y. Med. Journal*, December 7, 1901).

The affection is described by these gentlemen about as follows:—A child complains of pains in the throat and difficulty in swallowing. His temperature is not much elevated (in only one of twelve cases to 103.4° F.); his submaxillary lymph follicles are slightly enlarged.—Examination of the pharynx shows on one or both tonsils an ulcer of rather "chancroidal" appearance. The depth of the ulcer varies from ⅛ to ½ inch; the shape is irregularly oval; the size varies from a spot as large as the little finger-nail to an ulcer covering the whole tonsil. In the first twenty-four hours it may appear membranous; afterwards it sloughs, covering a raw, "worm eaten" base. A swab readily breaks the membranous covering and enters the cavity of the ulcer. The affection is associated uniformly with certain large fusiform bacilli, and sometimes also with

spirilla. As to the certainty of the causal connection between the germs and the disease, and as to the differential diagnosis, the writers should be allowed to speak for themselves:—

"Clinical diagnosis: The most important distinction is from diphtheria, confluent follicular amygdalitis, and other tonsillar inflammations.

"The facts that one tonsil is usually involved, that the submaxillary glands are enlarged, and that the temperature as a rule is not markedly elevated, suggest diphtheria. Clinically it differs from diphtheria in that it is an ulcerative process, in the absence of tendency to spread beyond the tonsil, and in the usual absence of asthenia and constitutional symptoms. For all practical purposes it may be stated that the affection is ulcerative, while diphtheria is membranous. It must not be forgotten, however, that many cases of diphtheria are ambulatory, without any signs of prostration, and that in the third and fourth weeks, as Henoch states, ulceration may occur. The fact that other members of the family are affected cannot be relied upon for suspecting or corroborating the diagnosis of diphtheria, because, in our series, three members of one family were attacked,— two of them simultaneously, the other, three weeks after a cure had been effected in her sisters. This seems to show that, after all, most cases of tonsillar infection are contagious to a greater or less degree.

"From confluent follicular amygdalitis it is distinguished by the absence or mildness of constitutional symptoms—fever, headache, malaise and prostration,—by the superficial character of the former, and by the presence, perhaps, of follicular spots on one or the other tonsil. The cases of follicular amygdalitis associated with ulceration are distinguished by the presence, in addition to the ulceration, of follicular spots on one or both tonsils and by the constitutional disturbances.

"Microscopical diagnosis: With all the clinical aids just mentioned, it is upon the microscopical appearances only that a positive diagnosis must be made. While in diphtheria there is no reliance, or very little at best, is to be placed upon the immediate examination of a smear from the tonsil, the opposite holds good in this condition, in which every reliance is placed on the smear, and practically none—for the reason that no satisfactory culture medium has so far been invented—on the cultures on ordinary media. In making smears and cultures

it will be found that the swab for... ecrotic mass before it and finds its way into a cavity of varying depth; at times portions of the sloughing mass are removed and bleeding easily takes place.

"While our smears have been stained with watery solution of methylene blue (5 per cent.), gentian violet, Loeffler's blue, Lugol's solution slightly acidified with lactic acid and Ziehl's solution of carbolfuchsin in the proportion of 1 to 3 of water, we have found with Vincent and Salomon that the last gives the most distinct picture. In all of the cases the microscopical appearences was practically the same, in that the characteristic fusiform bacilli and spirilla were present in very large numbers.

"Vincent distinguishes two forms: (1) Diphtheroid, which is rare, and in which the fusiform bacilli alone are found. (2) The ulceromembranous form, which is frequent and in which both the fusiform bacilli and spirilla are present in great numbers. Hence the term "*angine fusospirillaire.*" In all of the cases which we have examined we have found the two forms combined.

"The bacillus is about twice as long as the Klebs-Loeffler bacillus and, as being needle-like, somewhat pointed at the ends (fusiform). Some are bent so as to form a crescent; they are sometimes arranged end to end in ∽ shape, and at an acute angle L; some are arranged in pairs or groups similar to the diphtheria bacilli; others are scattered about without any particular order or grouping. They vary somewhat in size, some being larger and thicker than others; however, they are always longer and thicker than the diphtheria bacilli. The spirilla are long and cork-screw-like, with wide curves; they also vary in size, the longer and thicker ones staining more deeply.

"As to the motility of the bacillus, authors differ. Vincent found it non-motile; Letulle found it motile. We have used a drop of the saliva of the patient, as suggested by the latter, and found it distinctly motile." B.

ORIGINAL ARTICLES

AN UNUSUAL CASE OF SUBPERIOSTEAL HEMORRHAGE OF THE ORBIT FOLLOWING AN UNCOMPLICATED DELIVERY.

By Edgar S. Thomson, M.D..
New York.

F. T., male, colored, was brought to Dr. Emerson's clinic at the Manhattan Eye and Ear Hospital, July 22, 1899. He was at this time one week old, and had been delivered after a labor which was uncomplicated, as far as could be ascertained. The mother was a multipara, this being her fifth child. She had been in labor about four hours. No instruments were used during delivery, and the child had been considered a normal, healthy baby. He weighed about 7 pounds.

One day after birth the right eye gradually began to protrude and kept on protruding until, at the time of the child's admission to the hospital, the lids could scarcely be closed. The cornea was clear at this time, the pupil normal in size and reaction, and the only noticeable feature in the globe, aside from the exophthalmos and immobility, was a peculiar dilatation of the large vessels of the iris which appeared as intensely red lines radiating from the pupillary margin. The conjunctiva was somewhat injected but not violently so and was slightly swollen. The tension of the eyeball was normal and no fundus lesion could be discovered.

By palpation a mass could be indistinctly made out lying in the upper part of the orbit and apparently far back toward the apex. The orbital tissues were much swollen. The mass was not sharply outlined and seemed soft, but no fluctuation nor pulsation could be elicited. It was not tender on pressure. The fellow eye was apparently normal; the lids and tissues about the orbits were normal. There was no ecchymosis nor abrasion of the skin, and no fracture of the bones could be made out. The child seemed somewhat depressed, would take only small quantities of food, and cried a great deal.

It seemed clear that we were dealing with a malignant growth, on account of the great rapidity of the onset, and it was inferred that a fluid effusion must have occurred at the apex of the orbit. The child was admitted to the hospital and hot applications were used to reduce the swelling. The condition grew steadily worse, however; the eye protruded more and more and the lids could no longer be drawn over the cornea. The cornea became dry and deeply infiltrated, and the child would take no food voluntarily and seemed to be losing strength. It seemed certain that the eye could not be saved, and accordingly, two days after admission to the hospital, he was operated upon and the eye was enucleated. (The cuts show the amount of exophthalmos at the time of the operation). After the enucleation, which was accomplished without special accident, a large fluctuating mass could be felt next the roof of the orbit near the apex. As this was being palpated it burst and several drams of blood with clots and serum came out. All the orbital tissues were much infiltrated. The bony roof of the orbit could be felt through the opening in the soft tissues but no fracture nor roughness of the bone could be made out.

No further bleeding took place. The swelling of the orbital tissues rapidly subsided and the child left the hospital in a few days. When last seen, three months after the operation, he seemed well and strong.

Microscopical examination of the eye showed no abnormality except deep infiltration of the cornea and beginning infiltration of the optic nerve. The blood vessels were normal.

Subperiosteal hemorrhage in this locality is certainly rare. There must have been some traumatism during birth which operated as the direct cause; but when one considers the sheltered position of the orbital roof it seems strange that such hemorrhage could occur without some more definite symptoms of fracture. That this is at least possible seems proven by six cases of von Hölder (Noyes, Dis. of the Eye, p. 751) where "at the autopsy orbital hemorrhage appeared without any fracture of any part of the skull, as demonstrated by stripping off all the dura mater. . . . As a proper offset to these observations, von Hölder furnished an account of 124 cases of fracture of the skull, in 79 of which he found fracture of the roof of the orbit and in the remaining 10 blood was confined to the vicinity of the periosteum." Or, in other words (*loc. cit.*)

"orbital hemorrhage is associated with fracture in 92 per cent. of cases due to injury, and in 8 per cent. there is no fracture." Spontaneous hemorrhage can well be left out of consideration in the present case.

It seems likely that we had to deal with a small fracture which escaped notice, most probably through the orbital plate. The continuous oozing of the blood, as was shown by the increasing exophthalmos (though this was no doubt in a measure due to swelling of the tissues from venous obstruction) was a further indication of fracture.

The dangers to the eye in these cases are, first, from drying, infiltration and ultimate sloughing of the cornea, through inability of the lids to protect it; and second, from inflammation and subsequent atrophy of the optic nerve from the sudden stretching or from pressure. Little can be done to protect the cornea in cases that have advanced so far as this one had. Earlier in the case the lids could have been stitched together for a few days and the eye bandaged until the swelling had subsided, but at the time of admission to the hospital the swelling was so great that this could not have been done. Of course orbital cellulitis should be carefully excluded before making any pressure. In this case there were no indications of pus formation. The cornea can be kept moist by constantly dropping a weak saline solution or a simple oil upon it, but even if this is done the ulceration is apt to progress if it has once started.

The danger to the optic nerve is very great in such cases. Of course direct pressure upon the nerve will cause it to atrophy, but without pressure the nerve may be destroyed by the inflammation following *sudden* stretching. In cases where the exophthalmos comes on gradually, as in orbital neoplasms, the nerve has time to accustom itself to the stretching and the vision is often surprisingly good.

Exploration of the orbital tissues might have been done here had the patient come under observation earlier, and the hemorrhage drained without loss of the eyeball, but at the time the case was first seen the swelling was so severe that any such operation would have been followed by severe reaction, which the child seemed in no condition to endure and it seemed wisest to sacrifice the globe as the quickest means of reducing the inflammation, particularly as the prospects of vision in the eye were almost nil.

16 East Forty-third street.

CIRRHOSIS OF THE LIVER IN INFANCY AND CHILDHOOD.*

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CIRRHOSIS of the liver is one of the most uncommon diseases that occurs during infancy or childhood. The cirrhoses belong to the decadent period of life and it is only under the most unusual conditions that they are encountered during its ascendency. Though similar morbid factors be evolved within the economy of the child that in the adult lead to a gradual parenchymatous decay and interstitial overgrowth, still in the child the nutritive and reparative powers of the individual are sufficient to sustain and restore the hepatic parenchyma even though seriously damaged. In children who die as the result of some overwhelming sequel of the acute infectious diseases the liver frequently is found to be the seat of an extensive cellular infiltration of the connective tissue, with a granular, fatty, or even necrotic degeneration of the epithelium; and so often is this seen that we may believe there is always more or less hepatic inflammation in the severer cases of infection. Klein examined the livers in eight consecutive autopsies on scarlet fever and discovered acute hepatitis in all. Moreover we find clinically sufficient corroborative evidence in the enlarged livers and sub-jaundiced skins that are present in the many severe infections that ultimately recover, to assume that this acute hepatitis is not confined to the lethal cases. Despite the frequency of acute hepatitis it is most unusual to meet with a case in which there is the slow productive overgrowth of subsidiary tissue at the expense of the glandular elements which constitutes the morbid picture of cirrhosis. Cirrhosis is an advanced lesion, slow and tardy in its evolution and demands time for its development. It is only under such conditions in which the nutritive and restorative powers of youth gradually have been exhausted, a condition in which the individual is a child in years only, but his tissues are senile, a state which is reflected in his physiog-

* Read before Chicago Society of Medicine, January, 23, 1902.

nomy some time before there are any evidences of hepatic cirrhosis, that the continuous or closely intermitting action of some attenuated poison upon the liver induces a hepatic cirrhosis.

It is so rare a disease in the young that those who have had the largest clinical experience can count their cases in the units. Though the recent literature has greatly multiplied the number of recorded cases and some have advanced the statement that the disease is not uncommon in the child, yet the infrequency of the disease can be sufficiently substantiated by quoting the statement of a few of our greatest clinicians. Baginsky has seen 4 cases: Henoch has never seen the disease fully developed in children; Chas. West, among 70,000 sick children, saw cirrhosis but four times, and Frerich saw it once.

Etiology.—Male children are afflicted more often than female in the proportion of 5 to 1. In Palmer's group the ages varied from one month to eighteen years, and 50 per cent. of these occurred between the ninth and fifteenth year.

An alcoholic history has been obtained in less than 20 per cent. of the recorded cases. In a few of these the amount of alcohol taken daily for a considerable time has exceeded a pint of brandy, but in most of them only a small quantity of spirits had been drunk. While the influence of alcohol in the production of cirrhosis in children is decisive, it is not so consequential as in the adult.

Syphilis is mentioned as an etiological fact in about 10 per cent. of the cases. Acquired syphilis does not affect the liver until from ten to twenty years after the primary infection, and hence need not be considered in the present connection. Hereditary syphilis has its seat of election in the liver, and the evolution of the syphilis may be precocious or tardy, i.e. may be manifest in fetal life or may not develop until adult life; some period between these extremes is the rule. The usual form of syphilitic cirrhosis is the diffuse interstitial hepatitis, the uniformly hard, flint-like liver. The gummatous form with secondary shrinking is rare. Palmer mentions the occurrence of an adhesive pylephlebitis in three cases of syphilis.

Tuberculosis is a relatively frequent causative factor. Hutinel considers that what he terms "cardio-tubercular cirrhosis" is the most frequent form of cirrhosis in childhood. In this group the primitive lesion is a tubercular pericarditis of

the adhesive type with latent evolution and is not suspected until the hepatic condition is well advanced. Hutinel has observed five such cases and recently Imerwol reported two. In other instances the tuberculosis primarily invaded the peritoneum and eventually occasioned a secondary contracting perihepatitis, and in a few individuals there has been a tubercular involvement of the liver with scar formation and shrinking.

The acute infectious diseases have been considered as potent causative excitors, but in no case has the evolution of the cirrhosis been unequivocally connected with the acute infections, nor have the infections occurred with greater frequency than might be considered accidental, and perhaps not oftener than in the average run of children.

Chronic sepsis, particularly when associated with a chronic peritonitis, has been an occasional factor.

Cirrhosis of the liver secondary to the nutmeg liver of heart disease has occurred a few times.

Thompson has collected a number of instances of obliteration of the bile ducts in the new-born which were followed by cirrhosis. The condition was ushered in by jaundice and could not be distinguished from the simple icterus of the new-born, the jaundice soon becoming very intense and the stools acholic. The liver as a rule was enlarged and the symptoms those of biliary obstruction. These cases I believe primarily are due to an inflammation of the large bile ducts in the neighborhood of the papilla, probably a catarrhal gastro-duodenitis, and differ from the disease in the adult in that the inflammation leads to a complete and permanent obstruction of the bile ducts. The termination has been fatal in every reported case, and in the greater number between the first and four months of life.

The symptomatology of cirrhosis of the liver might be considered as resulting from disturbance of the function of the hepatic cells, interference with the blood flow through the liver, and obstruction of the biliary flow. In childhood the cirrhosis is more often of the mixed type than either the pure atrophic or hypertrophic. Usually there is a blending of hypertrophy and scar formation, a periportal and peribiliary inflammation, an interlobular and intralobular deposit of connective tissue, a monolobular and multilobular cirrhosis; consequently the symptomatology is a composit of these two

clear cut forms of disease. The general development is tardy, the child small and puny for its years, the nutrition poor and the individual emaciated.

When the lesion in the liver is established the symptomtology in childhood mirrors the disease in the grown-up.

Severe gastrointestinal symptoms precede, usher in and accompany the cirrhosis. Icterus, varying in intensity from a mild yellowish injection of the conjunctiva to an intense icterus of all the tissues and sections of the body, had been present in 70 per cent. of the cases. Intense icterus was mentioned in one-third. It was present as often in the atrophic as in the hypertrophic form. Ascites was present in the greater number of children (65 per cent.) occurring in about equal frequency in the hypertrophic and in the contracting liver. Hemorrhage into the skin, or from the mouth, nose, stomach, or intestinal tract was a frequent symptom.

Venous stigmata on the face or body were commonly encountered. The liver was as a rule large, hard and readily palpated. In children more often than in the adult has the evolution been latent. In a case reported by Stack with the most typical cirrhotic liver in his series of 25 cases, and in one reported by Ormerod, there was not one symptom present that would suggest hepatic disease.

The diagnosis of cirrhosis in childhood is not always an easy one, since the consequential symptoms that usually pertain to the adult may be wanting in the child. Moreover certain diseases have somewhat similar symptomatology; for instance, chronic peritonitis. However, if we can demonstrate a large liver, huge spleen, icterus, suggillations of the skin, hemorrhages from the mouth and intestinal tract, and the presence of free fluid in the peritoneal cavity, it would indicate hepatic cirrhosis.

The prognosis is unfavorable and the course rapid, terminating as a rule within a year, some only living a month, others persisting for years. Death results from toxemia, exhaustion, frequently with hemorrhage, or a terminal inflammation of the serous organs, particularly the peritoneum. Therapy up to now has been fruitless. Could we anticipate the disease before the advent of the cirrhosis we might hope for much by withdrawing those factors that may have any baneful influence upon the child and giving careful attention to its hygiene and diet. Much has been claimed, particularly by the French

school, for an exclusive milk diet even if the cirrhosis be established.

The use of the so-called resorbent waters, such as Carlsbad, the inunctions of grey salve, and the rational fulfillment of the symptomatic indications grasp our present possibilities.

The Nathan Lewis Hatfield Prize for Original Research in Medicine.

The College of Physicians, of Philadelphia, announces through its committee that the sum of $500 will be awarded to the author of the best essay in competition for the above prize.

Subject: "The Relation Between Chronic Suppurative Processes and Forms of Anemia."

The essays must be submitted on or before March 1, 1903.

Each essay must be typewritten, designated by a motto or device and accompanied by a sealed envelope bearing the same motto or device and containing the name and address of the author. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers or their agents within one year.

The committee reserve the right not to make an award if no essay submitted is considered worthy of the prize.

The treatment of the subject must, in accordance with the conditions of the trust, embody original observations or researches or original deductions.

The competition shall be open to members of the medical profession and men of science in the United States.

The original of the successful essay shall become the property of the College of Physicians.

The trustees shall have full control of the publication of the memorial essay. It shall be published in the Transactions of the College, and also when expedient as a separate issue.—Address J. C. Wilson, M.D., Chairman, College of Physicians, 219 South Thirteenth street, Philadelphia, Pa.

CONGENITAL DEFECT OF THE PENIS.*

By A. M, Vance, M.D.,
Louisville, Ky.

THIS young man, aged 17 years, presents a very curious condition. He has a congenital defect of the penis; the glans never becomes enlarged even in erection; it remains infantile as you see it at present, and when erection occurs there is a typical appearance of an active chordee. There is a fibrous cord back of the urethra where the corpus spongiosum ought to be, which is absolutely unyielding.

I have never seen anything like it before and thought the case of sufficient interest to bring before the society. When erection occurs the boy suffers a great deal of acute pain, and the question for us to consider is: What can be done for his relief? Pain is so excessive that it makes him writhe whenever he has an erection. He has a good-sized urethra, but a very thin posterior wall. The left testicle, it will be noticed, feels as if its condition resulted from mumps; the right testicle appears to be in fair condition, but small like a boy's. The case looks like an aborted epispadias, but I am not sure that it can be so classified. It is evident no extra blood enters the glans penis as the glans does not participate in erection.

The question I want to ask is whether this boy can be benefitted by surgery, whether it would be advisable to cut this fibrous cord. I have performed this operation twice where the urethra opened further back, where there was an hypospadiac condition.

DISCUSSION.

Dr. T. S. Bullock.—I have never seen anything of this kind before and the case is very interesting to me on that account. I do not know exactly what the pathology can be; I do not understand the mechanics of the condition. It must be due to an absence of the corpus spongiosum.

Dr. A. M. Vance.—The case is most puzzling to me, still the boy ought to be relieved if possible. Upon introduction of

*Reported to the Louisville Medico-Chirurgical Society.

a soft catheter the urethra seems to be a thin mucous membrane and this fibrous band is between it and the penis proper. The glans in active erection gets no larger than it is now. I think it might be advisable to make a longitudinal section along the urethra and try to dissect out this fibrous cord from the root of the penis to the glans and then let the urethra drop back into place. In this, however, there would be danger of penetrating the urethra and producing an artificial hypospadias.

A new operation has recently been brought forward for transplanting the urethra in hysposdadiac cases where the opening is near the glans; it aims at dissecting up the urethra and transplanting it forward, in this way bringing the urethral opening near the position of the normal meatus. It seems to me simple division subcutaneously would be difficult if not impossible without destroying the urethra, as the fibrous band seems to be the posterior wall of the urethra.

In the condition the patient is now, he would be far better off emasculated if he could thereby stop the erections, because he suffers a great deal of pain at such times. The boy and his father tell me that pain is extremely severe during erections, and they are both anxious that something should be done if possible to improve the condition existing.

Dr. Todd examined 411 pupils from the schools of Minneapolis who had received cards of warning from their principals and found that 39 of them needed no attention. There were 18 whose vision in both eyes together was less than 20-200, 16 of whom were improved to normal or nearly normal vision. There were 31 whose vision in both eyes together was 20-100 to 20-200, all but one of whom could be improved to normal or nearly normal vision; 49 had vision of both eyes together from 20-50 to 20-100. All improved to normal or nearly normal. Thus, there were 96 who could not read writing on the blackboard from their seats; 283 suffered from asthenopia. There were 35 cases of lid disease which would interfere with school work. There was one case of double congenital cataract, 5 cases of choroiditis, 19 cases of strabismus. —*N. W. Lancet-Postgraduate.*

A HISTORY OF SIX VACCINATIONS.*

By J. M. Krim, M.D.,
Louisville, Ky.

I DESIRE to report the behavior of six vaccinations which were made during the month of October, 1900. I vaccinated 125 children during that month, all under two years of age and all primary. I used fresh glycerinized lymph in about half the cases and points in the others, aseptic precautions being rigidly exercised in all cases. The results were typical in all but the six cases which I will report in detail.

Case 1.—M. A., male, aged 1½ years, was vaccinated October 2d with lymph; a papule appeared on the fourth day with moderate redness surrounding it. On the seventh day a black spot appeared in the center of the papule which gradually spread to the size of a silver halfdollar, the arm from shoulder to elbow being very much swollen and dark red in color. The temperature was 104⅕° F. By the use of hot dilute lead lotion the condition was modified, the temperature gradually coming down to about normal on the fourth day. On the sixth day I was able to elevate the slough and trim it off. There was left a considerable depression which filled up with granulation tissue leaving a puckered scar. Complete recovery took place in about four weeks.

Case 2.—C. J., male, aged 1 year; vaccinated October 7th.

Case 3.—L. V., female, aged 11 months; vaccinated October 9th. The effects in these two cases were not so severe as in Case 1, the slough being only about half as extensive and the temperature being 103° F. It took three weeks for complete rocovery. Glycerinized lymph was used in these three cases.

Case 4.—L. P., aged 14 months; vaccinated October 5th.

Case 5.—J. S., female, aged 17 months; vaccinated October 20th. These two cases are practically a repetition of Cases 2 and 5.

Case 6.—M. S., female, aged 20 months; vaccinated October 16th. This case was as severe as Case 1, and ran about

* Reported to the Louisville Clinical Society.

the same course. Points were used in the last three cases. About two weeks after recovery had taken place I informed the parents that I believed proper protection had not been secured by the previous vaccination and I asked permission to revaccinate, which they refused fearing a repetition of the former results; but after reasoning and assuring them that, in my opinion, protection from smallpox had not been secured, they finally consented.

I revaccinated with glycerinized lymph those on which points had been used and *vice versa*. In Case 1 a typical result was obtained; in Cases 2 and 3 the result was negative. In Case 4 there was a typical result; Cases 5 and 6, negative. Two weeks later I tried humanized virus on the four negative cases with no result.

Now as to the cause of this unpleasant experience: I am at a loss to account for it. The parents and children were all healthy, living under good hygienic surroundings, with no evidence of any hereditary taint, and I am sure I used all the necessary aseptic precautions to prevent contamination and also used proper precaution to prevent friction or irritation from the clothing. I believe it was due to the accidental complication of erysipelas.

Juvenile Smoking in the Isle of Man.

A bill is soon to be introduced in the Manx Legislature providing that those who sell tobacco to minors under 18 shall be liable to a fine not exceeding $50 or to imprisonment not exceeding one month, or to both, while minors under 18 found smoking are subject to a fine not exceeding $10, to imprisonment not exceeding a week, or to whipping.—*Phila. Med. Jour.*

Mercer Street Hospital, Dublin.

The new children's ward of the Mercer's Hospital was formally opened January 11. A reception was held and a number of speeches were made.—*Phila. Med. Jour.*

SOCIETY REPORTS

NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Stated Meeting, December 12, 1901.

W. L. Stowell, M.D., Chairman.

The general subject for discussion was malnutrition.

Syphilis.—Dr. C. G. Kerley presented a paper on syphilis as a source of malnutrition in children. He had found that the severity of syphilis in the child was dependent upon the activity of the disease in the parent. One could never promise that a man or woman who had had syphilis would have children free from syphilitic taint. In children between the age of three years and puberty the occurrence of malnutrition, and its persistence, despite appropriate treatment, pointed strongly to syphilis as the underlying cause. One case of this kind was reported in which it was afterwards learned that the father had had syphilis fifteen years before marriage. Children who were undersized and who showed a feeble vitality should be given a course of antisyphilitic treatment without regard to the statements of the parents or their social position.

Tuberculosis.—Dr. Floyd M. Crandall took up this part of the general subject of malnutrition. He called attention to the fact that tuberculosis is one of the most protean of diseases in its manifestations. The anemia accompanying tuberculosis was usually marked by a diminution of the red blood corpuscles and of the hemoglobin; it was secondary, and not due to disease of the blood-making organs. The author gave special attention to the concealed forms of tuberculosis in children. He said that children sometimes waste away and die without showing signs of any organic lesion. They seemed to be suffering from simple marasmus, yet at autopsy tuberculous lesions were discovered. In other cases, after the symptoms

of marasmus had existed for a greater or less period the signs of organic disease developed, usually in the lungs. It was because of the existence of such cases that the theory of a "pretuberculous" stage had been propounded. This so-called pretuberculous stage was probably nothing more than an early stage of tuberculosis in which the disease had not yet been recognized. The deeper lymph nodes were the most common seat of concealed tuberculosis. These nodes might be seriously affected without involving the superficial nodes. On the other hand, involvement of the superficial nodes without constitutional disturbance afforded no evidence of involvement of the deeper nodes. The anemia of tuberculosis was certainly not characteristic of the disease. Loss of weight was common, but did not necessarily proceed steadily. Cachexia rarely occurred early enough or was sufficiently distinctive to be of value in making the diagnosis before other symptoms could be recognized. An absence of cough in tuberculosis was by no means uncommon; even with pulmonary involvement it might occur rather late and be so slight and at such long intervals as to be entirely overlooked by the physician. Sometimes it was of a paroxysmal character, simulating pertussis. Marked fever might not be present until late in the disease. The indigestion, loss of appetite and vomiting so often seen in these cases were by no means characteristic. There was a type of tuberculosis in children resembling typhoid fever. In this type wasting in the first stage and wasting and fever in the second stage were never absent. Unfortunately, even after pulmonary signs had developed, it was possible to be too dogmatic in one's statements, for such symptoms were sometimes met with in pure marasmus. While none of the symptoms were characteristic of tuberculosis, taken together they formed a group which should place the physician on his guard and lead to a timely diagnosis. Anemia and wasting in a young child in whom thorough examination failed to show an adequate cause should always lead to a suspicion of incipient tuberculosis. In tuberculous families children between the ages of fourteen and twenty should receive special care, and any anemia should receive prompt and careful treatment. He had come to look upon chlorosis as a much more serious disorder than was generally supposed. A chlorotic girl was a candidate for almost any wasting or infectious disease, and foremost among such diseases was tuberculosis.

Rachitis.—Dr. A. Jacobi spoke of the relation of rachitis to malnutrition. He said that one should differentiate between malnutrition occurring in rachitic children and malnutrition dependent upon rachitis. While many cases of rachitis could be traced back to hereditary syphilis, there were a great many more cases of hereditary syphilis that had nothing to do with rachitis. There were really only a few forms of malnutrition which were directly dependent upon rachitis. Of these might be mentioned a moderate excess of lactic acid in the stomach and an absence of hydrochloric acid. The part of the body which suffered most and was most directly connected with the production of malnutrition was the chest. The chest, as a result of rachitis, lost its elliptical shape and so interfered with the action of both the lungs and the heart. If scoliosis were present the aorta would be distorted and the circulation through it impaired in consequence. Even with only a moderate amount of compression of the thorax the liver and spleen would appear to be enlarged because of their displacement downward. Rachitis was not a disease of the bones alone but was truly a constitutional disorder. It not infrequently manifested itself almost exclusively in the muscles. The striped muscles might be so markedly involved as to give rise to a form of weakness improperly known as pseudoparalysis. The intestinal muscles shared in this muscular weakness, and when a breast-fed infant that was not constipated at birth showed constipation in the second or third month, one might feel reasonably sure of the existence of rachitis. Another result of the muscular debility was a tendency to pulmonary atelectasis and bronchial catarrh. The digestive organs shared in the general malnutrition, and consequently tympanites, colic and vomiting were apt to be present. Rachitis of the base of the cranium was the anatomical cause of many cases of cretinism. Almost every case of laryngismus stridulus was dependent upon cranial rachitis.

Dr. William Henry Porter was of the opinion that all forms of malnutrition arose from defective quantity or quality of food, from a lack of sufficient exercise, or from conditions disturbing the nervous mechanism. The treatment should be directed towards correcting these fundamental conditions.

Dr. Walter Lester Carr spoke of certain cases of congenital syphilis in which malnutrition had been a prominent

feature, and made the point that while antisyphilitic medication was often exceeding important it should not be allowed to overshadow other causes of malnutrition. Thus, in the case of a syphilitic infant that had not done well even under a course of specific medication, he had discovered that disease of the nose interfered seriously with suckling at the breast. Accordingly, he directed that the milk be drawn from the breast and fed to the infant, and this had caused an immediate and marked improvement in the general nutrition.

Dr. J. E. Winters expressed great surprise that a certain teacher of genito-urinary diseases took the ground that infants with inherited syphilis, nursing from the breast of an apparently healthy mother should be immediately weaned. Dr. Winters said that it had long ago been shown that the mother under such circumstances was not susceptible to syphilitic infection as it was impossible for the mother to give birth to a child without having contracted the disease. This law had been laid down in 1837 and had been, in more recent times, reaffirmed by the careful investigations of such authorities as Jonathan Hutchinson. In a large personal experience he had never known the mother to be infected with syphilis by her infant, and if any physician had observed a syphilitic lesion on the mother's nipple under these circumstances it was his duty to report it.

Dr. David Bovaird, Jr., said that the remarks of the last speaker recalled to his mind a case in which no less distinguished a physician than the late Dr. Joseph O'Dwyer had directed the removal of a syphilitic infant from its mother's breast, asserting that he had himself seen the mother infected with syphilis in this way.

Dr. C. G. Kerley said that he recalled having seen reported some years ago from Munich a case of such infection.

Dr. A. Jacobi said that while it was the rule that a baby with hereditary syphilis does not infect its own mother, there were exceptions to this rule, and he had himself seen and reported some of these exceptions. However, their occurrence was so rare as to "prove the rule." He agreed with Dr. Winters that the baby should not be taken from its mother's breast

but the mother should be warned and should be kept under observation. Dr. Jacobi said that he wished to emphasize what had been already said by Dr. Kerley, regarding a syphilitic element underlying these cases of malnutrition which manifest themselves in many children, even of well-to-do parents by feeble vitality and poor development of muscle and bone. All the usual hygienic and climatic measures would often fail to improve these children, though they would thrive when given antisyphilitic treatment. It was often necessary to repeat this medication at intervals up to puberty. So often had he observed this that he had been led to think that this wonderful improvement observed in many puny children following the use of mercurials had perhaps been the origin of the routine use of calomel practiced by our forefathers He did not recognize the existence of what was called retarded syphilis; the so-called cases of retarded syphilis were really examples of an improperly treated syphilis of childhood reappearing years afterward, perhaps not until the age of twenty or thirty. Such late developments could be prevented by a sufficiently long course of specific treatment in early life and occasional inspection for several years afterward.

Dr. H. D. Chapin remarked that it should not be forgotten that all syphilitic babies are not poorly nourished.

Worms.

A large number of medicines have been employed for the purpose of expelling worms. Santonin is probably the best, and is used more than any other remedy in this country. It can be given in powder, on bread and butter, or sweetening, or lozenges, combined with calomel. It has the advantage of easy administration and is destructive to both the round and thread worms and the ova. Any anthelmintic given should be combined with a purgative or followed with a purgative, as this assists in expulsion of the worms and the ova. We should be careful not to give over doses. The best plan is to give an anthelmentic with calomel, or mercury with chalk—one effective dose at night and, if necessary, followed the next morning by some mild laxative.—Scholl in *Jour. Med. and Surg.*

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

Stated Meeting, Jan. 19, 1902.

LONDON.

A. H. Tubby, M.S., in the Chair.

Dr. George Carpenter showed a case of paroxysmal hemoglobinuria in a female child, aged 3 years. An infant sister had been treated at the hospital for congenital syphilis but the patient showed no signs of that disorder.

Dr. Charles McAlister (Liverpool) suggested that absorption from the nasal discharge, from which the child suffered, might be responsible for the condition.

Dr. G. A. Sutherland called attention to the presence of oxalates in the urine of such cases.

Dr. Guthrie spoke of two sisters who developed hemoglobinuria and who were undoubtedly syphilitic.

Dr. George Carpenter, in reply, remarked on experiments showing the immediate destructive action of cold on the red blood corpuscles of such cases, when topically applied.

Dr. George Carpenter read notes of a case of super-renal sarcoma, in a boy aged 2½ years, the organs from which were demonstrated by Dr. Nabarro, who had conducted the autopsy. The right kidney was invaded secondarily by the new growth and the left had become hydronephrotic from pressure on its ureter. The mesenteric and pelvic glands were secondarily invaded and some glands under the sternomastoid subsequently. The case in its clinical aspect was not unlike tuberculous peritonitis but the injection of tuberculin gave negative results and confirmed the original opinion.

Mr. Tubby and Mr. Clement Lucas drew attention to the hopelessness of surgical interference in the large majority of cases of renal sarcoma.

Dr. Cantley looked upon it as a case of extra-renal sarcoma with secondary renal attachment, and enquired as to secondary deposits in the skin.

Dr. George Carpenter, in reply, said there were no sec-

ondary cutaneous deposits. He did not consider it a case for operation and that opinion was borne out by the post mortem examination.

Mr. Clement Lucas showed a case of traumatic chorea and musculospiral paralysis complicating a fracture of the upper third of the humerus, in a girl aged 11 years. The chorea developed within half an hour of the injury and was not associated with heart disease, or a rheumatic history. The musculospiral paralysis was believed to be caused by the callus resulting from movement during repair, and it was proposed to cut down the seat of fracture and relieve the nerve from pressure. Another interesting point in the case was an abnormal growth of hair on the lower third of the arm and dorsal aspect of the forearm corresponding to the skin supplied by the injured nerve.

Dr. Frederick Taylor asked whether a recent attack of any infectious disorder could be negative, and whether it was certain that there were no choreic movements prior to the accident. He observed as to the obscurity surrounding the relationship of chorea to the emotions and shock. How did the traumatism operate? Throngh the central nervous system, the nerve of the limb, or by the production of shock?

Mr. Pernet, Mr. Jaffrey and Dr. George Carpenter joined in the discussion, and Mr. Clement Lucas replied.

Mr. Tubby showed several cases of paralytic talipes calcaneo-valgus, equino-valgus and equino-varus which had been treated by muscle grafting. In some of the cases, especially those of calcaneo-valgus, the results were good, also in two of the cases of equino-varus. But the equino-valgus cases were not so striking, although the improvement was very considerable. In his remarks on operative procedures alluded to Mr. Tubby said that paralytic cases might be divided for purposes of treatment into three classes: those in which a single muscle or a single group of muscles were affected, and those were capable of satisfactory treatment by tenotomy; those in which at least two groups of muscles were paralyzed, and these were fit subjects for muscle grafting, and lastly, those severe cases in which all the muscles around a limb were useless and for these arthrodesis was recommended. After speaking of the limitations of muscle-grafting, and indicating its scope and pointing out that as there was a diminution of power applicable

to a given joint the best results could not give perfect satisfaction Mr. Tubby yet thought that muscle grafting was a scientific and practical procedure, for it distributed what voluntary power was left around an articulation and it became well-balanced, although too often weak. The indications and methods of operating in arthrodesis were then alluded to and three cases shown. A case of infantile spastic paralysis affecting the upper extremity was brought forward, in which considerable improvement had been obtained by converting the pronator radii teres into a supinator, and by section of the flexor carpi radialis the patient now has the power of voluntary but partial supination of the forearm. The method adopted is fully described in the *British Medical Journal* of Sept. 7, 1901, and from an experience of six cases Mr. Tubby thought the operation promised well.

Mr. Clement Lucas and Dr. Sansom spoke of the value of Mr. Tubby's suggestions, and Mr. Tubby replied.

Mr. Walter Edmunds and Dr. George Carpenter showed a case of myositis ossificans, in a female aged 4 years, one of a family of eight. The disorder had been noticed six months, and recently had rapidly advanced. The affected muscles were in parts infiltrated and in others displayed bony plates. There was fusion of two phalanges of the great toes, a condition which had been recognized as occurring in these cases microscopical examination of a portion of an infiltrated muscle showed fibronuclear tissue alone.

Dr. Milligan read notes on a case of contracted granular kidney, in a boy, aged 7 years. The chief symptoms were pallor, wasting, headache and polyuria. The heart was slightly hypertrophied, the skin bronzed and the urine of low specific gravity and albuminous. Later he developed albuminuric retinitis, and epistaxis and cutaneous hemorrhages occurred. Four weeks before death the heart began to fail, the extremities became dropsical, giving place to general anasarca with anuria, and the child died comatose. The kidneys, macroscopical and microscopical, were typical of the condition.

Dr. George Carpenter enquired as to a history of syphilis in the case and said that he had not yet detected albuminuric retinitis in cases of contracted granular kidney in children; but he had seen that condition in a child of eight years who had suffered from a large white kidney, which was verified post mortem.

Dr. Sansom regarded it as one of typical interstitial nephritis, but thought that acute parenchymatous nephritis had been grafted on it.

Mr. Sydney Stephenson thought it quite possible that retinitis might be as common in interstitial nephritis in children as it was relatively in that disorder in adults. His own experience had furnished him with two such instances, the latter of them two days since.

Mr. Sydney Stephenson read for Dr. Louis Marshall (Nottingham) notes on a case of thyroid dislocation of the hip, in a child, aged 9 years, of four months' duration, confirmed by X-rays. There were two joints worthy of note; a previous synovitis of the hip-joint had existed, and reduction was quite easily effected by manipulation.

Colds.

Dr. Charles H. Shepard, writing in the *Jour. of A. M. A.* on the subject of colds, makes the assertion that the practice of administering quinine to break up a cold is to be condemned because it debilitates the nervous system and weakens the action of the heart. The same may be said of any alcoholic medicament, because the nervous system is first irritated and afterwards depressed by its use. To make a radical cure of a cold let the patient abstain entirely from food for at least 24 hours; should the bowels be at all inactive it is desirable that they be thoroughly flushed with warm water. Drink freely of pure water, taking a brisk walk in the open air and then a Turkish bath. This may well be followed by an oil rub, which mollifies the skin, making it more flexible and active.—*Cleveland Jour. of Med.*

Carbolic Acid.

Sargent describes the treatment of poisoning cases, and in conclusion says it is safe to say that alcohol is the most perfect, the most certain and the most handy antidote to carbolic acid which we possess.—*Medical Herald.*

BOOK REVIEW

PEDIATRICS; The Hygienic and Medical Treatment of Children. By Thomas Morgan Rotch, M.D. Third edition. J. B. Lippincott & Co., Philadelphia and London. 1901. Price (cloth) $6.

This book in its former editions is already well and favorably known to the medical public, and it remains to comment here only upon the changes in this edition.

The author explains that the subjects have been generally revised and sometimes rewritten, so as to make the present issue practically a new book.

Along with general commendation of the rational and conservative treatment of most of the topics (e.g., tetany, pseudoleukemic anemia," and others) we note with regret that the colors of many of the colored plates are too unnatural to be specially valuable to those beginners who might rely upon them.—Precisely why the very inaccurate and misleading pictures of the mosquito Anopheles should have been touched with such impossible colorings it would be hard to say.—Perhaps the ill-arranged and uncertain article on malaria is an unavoidable matter with an author whose practical experience with the disease is necessarily limited.

The gravest error in the book is the entirely unjust and mistaken attribution to Dr. Westcott of the "general formulæ for the modification of milk" on pp. 235 and 236. These formulæ, which were described recently by Dr. Westcott* himself as "forming the groundwork of every system of calculation for percentage formulæ," were published in PEDIATRICS for March 1, 1899, p. 205, by their originator, Dr. Fielding Lewis Taylor, of New York. Westcott (*l.c.*) gives full credit to the latter author.

We think it the more needful that this correction should be made here inasmuch as we have noticed the same mistake in another recent work on children's diseases by Dr. Starr, of Philadelphia. B.

*Thompson S. Westcott, "The Scientific Modification of Milk," *International Clinics*, tenth series. vol. iii, p. 233, October, 1900.

PRACTICAL NOTES

Gonorrheal Vulvovaginitis in Young Children.

Peterson summarizes as follows:

1. Vulvovaginitis in the young girl may be divided into simple and gonorrheal.

2. Simple catarrhal vaginitis is due, in a large majority of cases, to lack of cleanliness, and subsides when the proper treatment is instituted.

3. Gonorrheal vulvovaginitis in young children is more common than is generally supposed. While more frequently met with amidst unhygienic surroundings in large cities, it is by no means a rarity in the less thickly settled districts.

4. Gonorrheal disease is more frequent below the age of six, and it is more common in girls than in boys.

5. Specific vulvovaginitis in the large majority of cases arises from actual contact of the patient with some infected person. A study of the reported epidemics, however, shows that the disease may be spread by other means, such as a common bath, towels, bed-linen, etc.

6. The ordinary staining methods will prove satisfactory in making a differential diagnosis between specific and other forms of vulvovaginitis.

7. The parts affected in their order of frequency are the labia, urethra, vagina and cervix; the vagina is more frequently affected in the child than in the adult, owing to the character of its epithelium.

8. The tubes, ovaries and peritoneum may be involved in the pathologic proces. It is not improbable that certain diseases of adult life may be asscribed to gonorrheal infection in infancy.

9. Purulent ophthalmia and rheumatism are quite frequent complications. The strictest prophylaxis should be observed in order to avoid the former.

10. The treatment of specific vulvovaginitis must be energetic to be of any avail. Under certain conditions the vaginal orifice should be widely dilated and the vaginal pus cavity properly drained.

In order to abate or prevent a recurrence of the redness and edema of the vulva and vestibule these parts must be kept clean by constant washings with sterilized water or a 5 per cent. solution of boracic acid. The parts should not be wiped, but should be douched off as frequently as may be required. The child will strenuously object to this, or, in fact, any mode of treatment, but the mother must be made to understand the necessity of carrying out the physician's orders if the disease is to be got under control.

In many cases the vaginitis is continued by the damming back of the purulent secretion because of the small opening in the hymen. The vagina in these cases is in reality an abscess sac, and this condition calls for drainage, just as does any pus cavity. Under these circumstances administer chloroform and thoroughly dilate the vaginal orifice, wash out the vagina with a 1-1000 bichlorid solution, wipe it dry with cotton, and apply a 10 per cent. solution of argentic nitrate, or a 1 to 2 per cent. solution of protargol. The application is made best through a Kelly urethral speculum. After this slight operation the discharge will markedly decrease and the dilation of the parts will allow the passage of a soft rubber catheter or a small speculum with ease. Then applications of the above solutions can be applied without causing too much pain, and douches of bichlorid or protargol may be administered daily. The treatment, however, must be persisted in until repeated microscopic examinations have shown that the vagina and urethra are entirely free from germs.—*American Medicine.*

The Treatment of Children.

Packard makes a number of points in regard to the difference in the medical treatment of children and adults. In the first place children cannot give their subjective symptoms. We have to depend more on our own examination and we must not forget that the child is not a man cut down. Much may be learned by close observation of attitude, the character of the cry and respiration, the facies, and examination of the fontanelle as a routine matter. He points out some ways in which he thinks we are misled in estimating the frequency of certain diseases in children, for example, typhoid, where the typhoid tongue as seen in the adult is not ordinarily met with. We

must also avoid falling into error in examining the chest of children, as the position of the apex beat is quite different, being higher, and the second sound in the pulmonary area is louder and more clearly defined than in older persons. He also found a curious square area of dullness at the extreme left chest posteriorly, closely resembling what has been described by Ewart as a sign of pericardial effusion. He thinks the left lobe of the liver may possibly be responsible for it. The physical signs are often quite different in children and adults; thus the cracked-pot sound can be readily developed on percussion over the healthy lung in an infant. Croupous pneumonia is another disease in which there is a great difference between children and adults, and he thinks we see much more frequently silent pneumonia and noisy pleurisies. The examination of the abdomen even offers more peculiarities than the chest. The normally large liver is one point he refers to. As regards the nervous system he refers to three points, the absence of Kernig's sign, which seems to have no significance, the slight value of Babanski's reflex and the ease in which lumbar puncture can be performed. The question of prognosis is a matter of importance. Children recover rapidly; they also die suddenly. The toxin elimination may be presumed to occur with greater facility than in the adult, and the heart has greater reserve force and reparative power than has the heart of older persons. He speaks next of the necessity of individualism in milk modification for infant food, the dangers of the routine treatment of digestive troubles, the too frequent diagnosis of intestinal parasitism, the impropriety of slitting the frenum of the tongue and the indiscriminate use of braces in rickety children, also the importance of retropharyngeal abscess, the relatively easy vulnerability of the endocardium in the child, the variability of symptoms of malarial infection, etc.—*N. C. Medical Journal.*

For the Mumps.

℞ Ichthyol.
Plumbi iodidi, of each.....45 grains
Ammon. chlorid.....30 grains
Lard..... 1 ounce

M. Sig.—Apply to swollen glands three times daily.—*Detroit Medical Journal.*

ABSTRACTS

STONE IN THE BLADDER OF A FEMALE CHILD OF FOUR YEARS.

Miles F. Porter (*Ann. Surg.*, December, 1901) says: I was called to see Baby A. when she was not quite six months old, on account of severe paroxysms of pain. These attacks were for a time considered by the mother to be of intestinal origin. Careful inquiry and observation led to a suspicion of renal colic, which suspicion was confirmed in a short time by the passage of calculi per urethraru.

She had frequent attacks of this trouble during the succeeding two years, during which time she passed fully a teaspoonful of calculi, ranging in size from a millet seed to a large wheat grain.

At the end of this time (she was then 2½ years old) the attacks of colic ceased and she seemed to be in good health save that she urinated quite frequently, until April 14, 1901, when I was called to see her, and learned from her mother that for some days she had been having attacks of pain, etc., when passing her urine. These symptoms I thought due to a stone in the bladder. Under ether the bladder was sounded and the diagnosis confirmed. She was taken to Hope Hospital, and after preparation was operated on April 16, 1901. She was,on the date of operation, 3 years, 10 months and 25 days old. A suprapubic cystotomy was made, and a single ovoid stone weighing (when thoroughly dry) 60 grains and measuring ⅞ inch in width and ⅜ inch in thickness was removed. The bladder was sutured immediately with catgut and the external wound closed with silkworm gut. A very small gauze wick was left in the lower angle of the wound reaching to the bladder. This was removed in forty-eight hours. The bladder was drained for five days by a catheter kept in the urethra. The child went home well on the twelfth day after the operation.

The age and sex of the patient, the size of the stone and the immediate closure of the bladder are the points of particular interest interest in this case, and seemed to me of sufficient importance to warrant its publication.

PRIMARY INTESTINAL TUBERCULOSIS IN CHILDREN.

Bovaird (*Arch. of Ped.*, Dec., 1901) after a review of the literature and of cases of tuberculosis occurring at the New York Foundling Hospital, concludes:

1. That English reports alone show any considerable number of cases of primary intestinal tuberculosis.

2. That primary intestinal tuberculosis is a very rare affection among

children in or about New York, little more than 1 per cent. of the cases of tuberculosis having this origin.

3. That the proportion of tuberculous cases found at autopsy in New York is lower than that of European observers.

4. That the evidence connecting tuberculosis among children with the consumption of the milk of tuberculous cows is very scant.

THE FOOD FACTOR AS A CAUSE OF HEALTH AND DISEASE DURING CHILDHOOD, OR THE ADAPTATION OF FOOD TO THE NECESSITIES OF THE GROWING ORGANISM.

Joseph E. Winters, M.D. (*Medical Record*, Jan. 25, 1902) in an article with the above title arrives at the following conclusions:

Nature, or, to be specific, chemistry, physiology and chemical physiology, have furnished unering guides for the feeding of children.

The time when and what farinaceous substances should be given is wholly evident.

Meat juice is contraindicated in very young children, owing to its exciting effect on the nervous centers, and the loading of the system with extractives which tax the excretory organs.

During all the years of early childhood, meat and its preparations should be given only sparingly on account of their overstimulating metabolism, but chiefly for the reason that they create a distaste for cereals, fats and fresh vegetables, thus depriving the system of materials needed to shield the proteids from oxidation that they may be stored for future needs, and of the necessary mineral salts which vegetables obtain direct from the soil.

In a child, with its relatively large cutaneous surface and correspondingly rapid heat loss, the large demand for calories must not be covered by proteid to any considerable extent, otherwise there is a lack of deposition of proteid—or of muscle growth. Increasing quantities of carbohydrates and fats in the food decrease proteid metabolism; a more lasting deposition of proteids for future needs is thus brought about.

To provide the mineral constituents necessary to maintain the normal reaction of the fluids of the body when these elements are being appropriated in large proportions for the growth of bone, muscle, etc., vegetables which obtain these elements direct from the soil must be consumed in fairly liberal proportions.

SPASMODIC INFANTILE HEMIPLEGIA WITH EPILEPSY.

Esteves (*Archiv. de Neurologie*, 1901, vol. xi, p. 460) discusses the question of trephining in such cases. The operation of craneotomy in cases of idiocy was suggested by Fuller in 1878, and at first received warm support, but experience has not strengthened the position of those who were favorable to the operation. Castro, for example, showed that in one

case atrophy of the brain on the side of the operation actually resulted. Esteves records the following case:

Child aged 25 months; when 1 month old had an attack of convulsions, after which the limbs of the right side remained paralyzed; rigidity developed later, and the child never gave any further signs of intelligence; convulsions were frequent. A piece of bone was removed from the parietal region, the dura mater incised and sutured to the periosteum in order to prevent bone formation. The subsequeut history (from September, 1899, to March, 1901) is that the convulsions entirely disappeared, and the mental condition improved so much that the patient was able to say a few words. He was able to walk when slightly supported by his hand, and rigidity had to a great extent, though not completely, disappeared. The result of the operation, therefore, was most successful.

Commenting on this case, the writer remarks on the difficulty of understanding the disappearance of the rigidity, and points out that, with infants, lesions of the brain are not always accompanied by degeneration of the pyramidal tracts. In general, the result of operations such as that described is that after a time the fits recur, so much so that Carter Gray considers the temporary cessation merely as an inhibitory action, which might equally well result after any other operation. Kocher, however, gives about 4 per cent. of cures.

In all cases it is necessary freely to open the dura, not only to diminish the intracranial tension, but also to prevent subsequent bone formation.—*Medical Chronicle.*

POLIOMYELITIS ANTERIOR ACUTA—TO WHAT EXTENT CAN IT BE CURED.

Joseph P. Cobb (*Hom. Jour. of Obst. and Ped.*, Nov. 1501) writes the following.

1. The onset is sudden, with fever, vomiting, coma and convulsions; resembling the initial symptoms of scarlatina. These initial symptoms persist but a few days.

2. Flaccid paralysis associated with atrophy appears early. The paralysis may be widely distributed, or narrowly limited to one member, or even to a single group of muscles. Electrical reactions of the affected muscles are altered and the deep reflexes are diminished or lost.

3. Retrogression of the paralysis will begin in from two to four weeks. Contractures will take place when one set of opposing muscles are permanently paralyzed.

4. Any muscle which responds to the faradic current, or in which an excitability to the faradic current returns, or one which gives normal behavior to the galvanic current, will regain its function.

5. The only satisfactory etiological theory of the disease is that it is an acute inflammation of the anterior gray matter of the cord due to infection. The infection is brought by the blood. The primary location of the infection is in the blood vessels: the inflammation then becomes interstitial. The proliferation of neuroglia and the degeneration of gang-

lion cells are secondary to the endothelial inflammation, and are most distinct in the vicinity of the altered blood vessels.

The prognosis as regards life is invariably favorable; neither should a gloomy prognosis as regards return of function be always given. It is true that some paralysis will always remain, but it may be but a small fraction of the muscles at first paralyzed that will remain permanently disabled. We are dealing with the most hopeful period of life, and no one can say how extensive the retrogression will be, or to what extent different groups of muscles will learn to do the work of their disabled co-workers.

Cases in which but few muscles have been involved will often recover with very little apparent disability, while cases in which the primary paralysis involved all of the limbs may not have a single limb completely paralyzed. Little change need be expected during the first month, and only signs of improvement in the second month. Muscles which, even though paralyzed, exhibit slight changes of electrical reaction may be expected to improve. Only those muscles which early show the reaction of degeneration and remain paralyzed for months are to be despaired of.

PERITONITIS FROM THE VULVOVAGINITIS OF CHILDREN.

G. Comby (*Archives de Médecine des Enfants*, September, p. 513). The complications of the vuvovaginitis of children are very varied though relatively infrequent. Arthritis, purulent conjunctivitis, cystitis, prolapse of the urethra with vulvar hemorrhages, and inflammation of Bartholin's glands have been observed. Numerous cases of gonococcic peritonitis have been reported, of which some were fatal. The condition may be acute, subacute, or chronic. The writer describes eight cases which were observed in the Hôpital Trousseau and the Hôpital des Enfants Malades, Paris, in the last few years.

In eight cases the ages of the patients varied from four to twelve years. Sometimes the peritonitis followed recent vulvovaginitis, sometimes chronic. The discharge sometimes yielded the gonococcus, sometimes did not. However, the vulvovaginitis was always contagious and its connection with some person in the patient's *entourage* generally was easily established. M. Comby thinks that only gonococcic vulvitis gives rise to peritonitis and that streptococcic and staphylococcic do not. The infection passes by the vagina, uterus and tubes, to the peritoneum.

The onset of the gonococcic peritonitis is sudden. The child has been apparently in good health and the vulvovaginitis may have been unnoticed; even in fatal cases it has not been severe. She suddenly complains of severe abdominal pain and vomits. The abdomen becomes tender and the slightest touch provokes cries; she lies with the legs and thighs flexed. There may be tympanites. Constipation or diarrhea may be present. Frequency of micturition was present in one of the writer's cases. The temperature varies from 100.4° to 104°. In spite of the fever the extremities are cold and cyanosed. In severe cases the *abdominal facies* is present. The duration of the symptoms varies from one to eight days. A relapse is exceptional.

The prognosis is good. All the writer's cases terminated in recovery. The diagnosis may be difficult. The vulvovaginitis may have been overlooked or almost cured. When the abdominal symptoms begin vulvovaginitis rarely suggests itself to the practitioner. Peritonitis from appendicitis is often diagnosed. Hence in all cases of peritonitis in children the external genitals should be examined. If vulvovaginitis is present the question of gonococcic peritonitis should be entertained. Bacteriological examination of the discharge is not of much value,—*Medical Review*.

SUPRARENAL EXTRACT AS A HEMOSTATIC IN HEMOPHILIA.

William Milligan (*Brit. Med. Jour.*, Feb. 1, 1902) says: Quite recently I had an opportunity of testing the value of this drug in a case of severe hemorrhage following the removal of nasopharyngeal adenoid vegetations in a boy, aged 10 years, who happened to be a hemophilic. The fact that the patient was a hemophilic was unknown to the parents and to myself. The operation was performed under chloroform anesthesia and with a Gottstein's curette, the patient's head hanging over the end of the table. The amount of bleeding at the time of operation was comparatively slight, but about twenty hours after operation the boy vomited several clots of blood of a peculiarly pale color. Examination revealed a constant though slow oozing of a pale pinkish fluid from the nasopharynx along the posterior pharyngeal wall. The nose was syringed with iced water and a hypodermic injection of ergotine given. The oozing, however, continued, and on the following day the nasopharynx was packed with an iodoform-gauze plug. Despite the tight packing the constant oozing continued, and the boy became pale and blanched. The plug was removed and another soaked in turpentine was introduced with, however, no better result. Finally a plug of gauze soaked in a solution of suprarenal extract was tightly packed into the nasopharynx. No further hemorrhage ensued and the patient made a good although somewhat slow recovery.

I think it right to record this case in the event of some *confrére* finding himself unexpectedly confronted with nasopharyngeal hemorrhage in a patient who turns out to be a hemophilic.

DIPHTHERITIC PARALYSIS.

The causes of paralysis in diphtheria have been made the subject of a fairly thorough pathological investigation by Fullerton and Thomson (*Edin. Med. Jour.*, January, 1902). They studied the nervous system in nine guinea pigs which had been injected with filtered diphtheria broth in varying quantities, and also in a number of children who died of the disease. They come to the conclusion that the paralyses may be either central or peripheral in origin. In the former case, the anterior horn cell first becomes the seat of degenerative changes, as evidenced by abnormal

staining reactions, while the nerve-fiber is still normal in appearance. A secondary descending atrophy of the nerve, however, follows upon the disease of the central cell. In the latter, or peripheral type, of which the common palate paralysis is an example, the muscles paralyzed are those in connection with peripheral nerve fibers which come into close relation with the seat of toxin formation in the throat and nasopharynx. The central paralyses are toxemic in origin; the peripheral are due to local and direct irritation. The latter have, of course, the better prognosis.—*Med. News.*

NOTES ON COW'S MILK AND INFANT TUBERCULOSIS.

A. Jacobi (*N. Y. Med. Jour.*, Jan. 25, 1902) says that it has been known for some time that initial tuberculous lesions need not correspond with the localities of original affections, for pulmonary infiltrations will follow the injections of bacilli, though made in distant places. Koch proved that lymph bodies might become diseased without affection of their roots. Solid particles are swept through the lungs. The spores of saprophytes and of anthrax are so introduced. Probably this happens more readily in children, whose organs are less altered by the solid results of previous morbid processes. Bollinger and Heller also have demonstrated that tubercle virus may penetrate through intact tissue, and that the assumption of Babes that cocci prepared the soil for such penetration and absorption is unfounded.

It is probable that many intestinal tracts, perhaps most, harbor bacilli now and then. When circumstances are favorable, they are absorbed instead of being expelled. Such favorable circumstances are either local lesions of the surface or sudden changes of osmosis. Thus it would seem as if absorption of tubercle bacilli might take place though the intestinal lining be ever so normal, not to speak of the greater facility of absorption during the frequent occurrence of local lesions like those of catarrh, inflammation, and ulceration. As a rule disintegrated or absent epithelium and open blood vessels or lymph channels are ready passes for the entrance of microbes or toxines.

Moreover, the young intestine is particularly predisposed, it appears, to absorption, both in its normal and diseased conditions. Its net of blood vessels is extremely complex, its lymph nodes and villi numerous and large. It seems therefore that noxæ, mainly tubercular, contained in the intestinal tract must be expected to be readily absorbed.

To judge from the fact that peritoneal tuberculosis is almost always isolated and localized (and therefore apt to get well) and rarely follows, generally precedes, pleural or pulmonary tuberculosis when there is an occasional dissemination of the tubercular infection, tuberculosis often enters the free abdominal cavity, and may spread from there, though the intestine, no matter whether the latter is in a healthy, or fairly healthy condition, or not. This much must be admitted that, after all, primary tuberculous ulcerations are rare. When they are found, they are mostly connected with pulmonary tuberculosis, mostly of the mixed type. Not less rare is primary tuberculosis of the mesenteric glands. But peritoneal tuberculosis is very, very frequent.

Measures for the prevention of tuberculosis should begin at a very early date. It is quite frequent in the first year of life, and quite serious, even fatal. When it is met with in more advanced childhood, it may be, and generally is, traced back to early influences. It is often difficult to say where the invasion took place, through inhalation, aspiration, in the nose, adenoids, the tonsils the bronchial glands, or, in less frequent cases, in the intestines and mesenteric glands; that is why every road to access should be blocked. He believes that the intestinal danger is underestimated.

THREE CASES OF IMPERFORATE ANUS AND RECTUM.

James Laurie (*Brit. Med. Jour.*, Feb. 1, 1902) writes: The relative infrequency of congenital defects of the rectum and anus prompts me to report the following cases, which came under my observation and treatment in 1895.

Keating, quoting Ball, says: "In a joint collection of 66,654 deliveries in the Vienna and Dublin Lying-in Hospitals there were only three cases of imperforate rectum."

Case 1.—I was called at 11 o'clock one night to see an infant (female) aged about 24 hours, and on my arrival at the house found a midwife busy giving it injections of soap and water, but "still it could get no passage." There was a well-formed anus, and on passing my finger ¾ inch into it, I found a very dense membrane occluding the passage. I opened it by a crucial incision, much to the relief of the child, and instructed the mother and nurses how to keep it dilated by passing the finger, well oiled, into the part. I saw the child some time after and it was doing well.

Case 2.—In the second case, which was also a midwife's, there was a very fine and delicate membrane closing the external aperture of the anus. The child had been born the evening before, and no feces had passed. The membrane was easily torn by a pair of dressing forceps, and the mother was instructed to keep it dilated.

Case 3.—I was informed by the nurse that the child had been born sixteen hours before and had no anus. On examining the perineum there was a well-marked raphé and considerable bulging when the child strained or cried, but no indication of an anus. Under chloroform, which was administered by Dr. A.G. Newell, I made an incision from the center of the raphé to the coccyx and felt the rectum bulging downwards. By a blunt dissection of an inch through cellular tissue I found the rectum ending in a blind pouch. Gently pulling it down, I incised it by transfixion antero-posteriorly, and sutured the end of the bowel to the skin. The sutures held, the child made a good recovery and had full control over its motions.

The infants were all well nourished, and were doing well when I heard of them last.

CIRRHOSIS OF THE LIVER AS SEEN IN CHILDREN.

W. C. Hollopeter (*Med. News*, Feb. 8, 1902) says: The embarrassing point in all liver trouble in young life is that we so frequently forget the relative over-size of the organ and to this fact is due the frequent error of regarding the organ as pathological when it is, in reality, normal, or, at best, functionally distended above its usual volume.

Cirrhosis of the liver in children and inflammation involving the fibrous tissues, capillaries, lymphatics or bile-ducts, separately or combined, is no longer regarded as a rare disease, now that we have so vast a field for the collection of data; anyone who has enjoyed a number of years of hospital experience, seeing many children, can so testify. Ten years ago it was thought that cirrhosis was one of the rarest diseases among children.

Interstitial hepatitis in infants is most probably syphilitic,—of course, inherited. The stigmata in the inheritance are usually found on close investigation, In older children the disease may occur apparently without any other tissues being involved; yet it is the outgrowth of some systemic disorder. Alcoholism, the most frequent single cause, according to Dr. Dawson Williams, accounts for about one-sixth of all the cases in children. The amount of aromatic wines, cordials, essence of pepsin, gin, etc., systematically administered to infants by shiftless and ignorant parents to offset care and attention can never be known, except as we see the unfortunate results in the hospitals and dispensaries of our large cities. This is an evil that is rapidly growing, and needs wide recognition for its suppression.

General tuberculosis is sometimes accompanied by fibrosis of the liver. About one-third of the cases of hepatitis follow in the wake of acute infectious diseases, typhoid fever, measles and scarlet fever. Dr. West mentions a boy of 6 years and Dr. Wettergren a boy of five years suffering from interstitial hepatitis, both of whom were in the habit of drinking largely of coffee.

Most of the cases of fibrosis of the liver in children are hypertrophic, except the alcoholic in the last stages. The organ is large, in color gray or orange-yellow and finely granular. The large size of the liver is due to the fact that the hepatic cells do not atrophy nor does the fibrous growth retract. The symptoms of the two forms of hepatitis—the atrophic and hypertrophic—by reason of their different pathological conditions in the earlier stages cannot be clinically discriminated, and it is well for us to dismiss at once any efforts to do so that we may gain a proper conception of the trouble. The early picture of this condition is blurred by the ever-present evidence of the symptoms of indigestion, and this especially is impressive, as the disorder occurs among a class where personal hygiene is unknown or unrecognized. We will always find evidence of interference of nutrition chiefly affecting the portal circulation in hypertrophic fibrosis and the circulation of the biliary vessels in atrophic hepatitis; yet this characteristic cannot be seen early enough in many cases to be of especial value. The child will be a sufferer from the vague symptoms of indigestion for a long time, a veil that covers many errors. Restlessness

at night for many months perhaps, flatulence, occasional vomiting, constipation alternating with diarrhea, evidence of dyspeptic diarrhea, with feverishness will be noticed; sallow skin, earthy in places, harsh and dry, elevated hair follicles, with a putty-colored skin; soon dark circles under the eye and loss of flesh, especially noticeable in the arms and legs. After this train of symptoms has existed for some months, improvement, alternating with many relapses, takes place. On closer scrutiny you will find the abdomen larger than usual and on palpation fluid will ofttimes be discovered. The first pronounced characteristic symptoms are, therefore, ascites, with wasted, waxy limbs, some edema ofttimes of the feet. The stigma of fine, dilated veins on cheek or nose or in the ear will ofttimes be a finger-board to diagnosis. Larger veins are found on the abdomen, forming four or five large branches running down from the xiphoid cartilage to the groin. These veins communicate above with the epigastric and internal mammary and below with the iliac and saphenous veins. The dilatation may commence later than ascites and may continue long after it has ceased. Venous embarrassment is a certain evidence of portal obstruction. The stigma found on the face and ear and nose ofttimes is, of course, inherited, but it is also a fairly certain guide to the pathological changes going on within the child. The enlarged liver may be palpated, unless dropsy is extreme, and the enlarged spleen is better felt with the child on all-fours. The spleen is almost invariably disturbed in liver disorders and will be found to be somewhat beyond the normal size. The nose bleeds easily and occasionally hemorrhoids form or slight bleeding from the bowels is an associated symptom.

POINTS IN THE TREATMENT OF CHILDREN.

Packard (*Jour. A. M. A.*) makes a number of points in reference to the difference in the medical treatment of children and adults. In the first place, children cannot give their subjective symptoms. We have to depend more on our own examination, and we must not forget that the child is not a man cut down. Much may be learned by close observation of attitude, the character of the cry and respiration, the facies. and examination of the fontanelle as a routine matter. He points out some ways in which he thinks we are misled in estimating the frequency of certain diseases in children—for example, typhoid, where the typhoid tongue as seen in the adult is not ordinarily met with. We must also avoid falling into error in examining the chest of children, as the position of the apex beat is quite different, being higher, and the second sound in the pulmonary area is louder and more clearly defined than in older persons. He also found a curious square area of dullness at the extreme left chest, posteriorly, closely resembling what has been described by Ewart as a sign of pericardial effusion. He thinks the left lobe of the liver may possibly be responsible for it. The physical signs are often quite different in children and in adults; thus a cracked-pot sound can readily be developed on percussing over the healthy lung in an infant.

Croupous pneumonia is another disease in which there is a great difference between children and adults, and he thinks we see much more

frequently silent pneumonias and noisy pleurisies. The examination of the abdomen even offers more peculiarities than the chest. The normally large liver is one point he refers to. As regards the nervous system, he refers to three points—the absence of Kernig's sign, which seems to have no significance; the slight value of the Babinski reflex, and the ease with which lumbar puncture can be performed. The question of prognosis is a matter of importance. Children recover rapidly; they also die suddenly. The toxin elimination may be presumed to occur with greater facility than in the adult, and the heart has greater reserve force and reparative power than has the heart in older persons. He speaks next of the necessity of individualism in milk modification for infant food, the dangers of the routine treatment of digestive troubles, the too frequent diagnosis of intestinal parasitism, the impropriety of slitting the frenum of the tongue, and the indiscriminate use of braces in rickety children; also the importance of retropharyngeal abscess, the relative easy vulnerability of the endocardium in the child, the variability of symptoms of malarial infection, etc.—*Richmond Med. Jour. of Practice.*

UNNOTICED FRACTURES IN CHILDREN.

The overlooking of fractures is especially likely to happen in children not only because they are less exact in their complaints but because many fractures in children show disproportionately little pain or reaction. Even if the fracture be complete the child is often surprisingly tolerant. A series of 18 cases of fractures in children, in which diagnosis was confirmed by the skiagraph, is reported by F. J. Cotton and R. H. Vose (*Boston Med. and Surg. Jour.*, Jan. 9, 1902), who suggest certain diagnostic points. In examining these patients there may be no complaint of pain, but some difference in the use of the limb of the two sides may be noticed. In some cases this is due to reflex muscular spasm of the same sort as is seen in the joint disease. Illustrations are the limp associated with certain fractures of the tibia and the loss of grasp in green-stick fracture of the forearm; again, in fracture of the clavicle, if the child be asked to raise both arms he lifts one hardly more than half as high as the other. Passive motion in these cases may or may not be painful. If painful, the pain is felt only on extreme flexion or extension. Local tenderness may be slight, but is always present. Careful palpation may reveal deformity and now and then wholly unexpected crepitus is found. When days or weeks have elapsed a well defined (often ring-like) callus is palpated. In treating the cases upon which their report is based, the writers obtained practically perfect results by simple fixation for from two to four weeks.—*Med. News.*

ENLARGEMENT OF BRONCHIAL GLANDS.

Although this is undoubtedly a comparatively frequent condition in childhood, it is probably very seldom diagnosed because physicians are

too careless in making physical examinations. Dr. Mc.M. Officer (*Inter. Med. Jour. of Australasia*, December, 1901) says that it may be recognized by the presence of dullness in the interscapular region of one side, together with diminished breathing over that side of the chest. The latter sign results from the pressure of the glands upon the bronchi and consequent narrowing of the lumen. The most frequent cause of the enlargement of these glands is tuberculosis, and in children pulmonary tuberculosis is usually secondary to the enlargement of these glands. A chronic bronchopneumonia follows and, in contrast to adult tuberculous lesions, the signs are frequently found at the apices. The early recognition of these glands at the root of the lung therefore becomes of prime importance. Influenza and measles are also causes of such glandular enlargement, but the enlargement is seldom so persistent as in the tuberculous cases.—*Medical News.*

ON DIPHTHERIA ANTITOXIN ERUPTIONS.

Arthur Stanley reports observations made on a series of 500 cases of diphtheria. They were all treated with antitoxin. Skin eruptions appeared in about one-fourth of the cases. The period of onset was usually during the second week after the giving of the antitoxin. The eruption constitutes a distinct type. The typical eruption is a marginate erythema on the psoriasis regions, tending to run into arcs of a circle, lasting about three days and accompanied by slight malaise, and a rise in temperature of about 3° F. The margins are raised and turgid. The lesions begin in macules, become rings, increasing in diameter, until the adjacent rings coalesce and break the arc. The spread of the rash is most frequent from face and trunk to limbs, and from extensor to flexor surfaces. It lasts from two to five days, but may exist for only a few hours, when of a scarlatiniform nature. The occurrence of an antitoxin eruption during the course of a case of diphtheria did not appear to influence the prognosis seriously, though it must be admitted that any febrile disturbance of the heart would tend to have a harmful effect. No case in this series, however, was observed in which heart failure was precipitated by the occurrence of an antitoxin eruption.—*Med. Record*, Mar, 1, 1902.

PEDIATRICS

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EDITORIAL COMMENTS

Clinical Thermometry

A trained nurse was recently talking in confidence about the ways of medical men, and remarked among other things that nothing could exceed their carelessness in the use of the clinical thermometer.

If one comes to think of it, and to observe the ways of the average practitioner, one is compelled to acknowledge that the accusation has more truth than fiction in it.

In the first place the sins of uncleanliness have to be mentioned. Thermometers ought to be washed after removal from the mouth, or rectum, or elsewhere. That all doctors acknowledge. But how many cleanse their instruments in soap and warm water, with a final rinse in running, cold water and an hour's sojourn in 1-500 bichloride? If this is said to be impossible, and the patient (best plan of all) is not able to provide his own, the doctor could at least carry two or three thermometers in his satchel or pocket, and not use the same one on two patients (except in emergency) on the same trip.

Then there are the errors of observation. The thermometer is sometimes not shaken down before using. Or, believing the fond statement of the seller, the doctor thinks he has a "one minute" thermometer, and wonders again and again why so many of his patients have a subnormal temperature.

As a matter of fact, for all mouth temperatures five minutes at least is required when the general American type of thermometer is used; and if the patient has recently been out in the cold, or has eaten ice-cream or drunk cold water, or is having a chill, the temperature of the mouth, as indicated by the instrument, will continue to rise for ten or twelve minutes after the thermometer is put under the tongue. Axillary temperatures are still more unreliable. In case the patient has no rectal inflammation or congestion, rectal temperatures are most desirable.

Far above all other indications, however, in clinical thermometry is the indication to use one's common sense in interpreting results. B.

Some of the Dangers of the Adenoid Operation

The removal of adenoid growths from the nasopharynx is so often accomplished without fatal or even serious consequences that we have come to regard the operation as practically free from danger. Hence we notice the report in the *Australasian Medical Gazette* for December 20, 1901, of three deaths following adenectomy. The first patient, a girl of 10, had had a purulent discharge from the left ear, intermittently, for about two years, with occasional earache. Adenoid vegetations were removed in an apparently skilful manner, with due antiseptic precautions. Nevertheless, an acute process became engrafted upon the chronic suppuration in the ear, resulting in mastoiditis, sinus thrombosis and a Bezold's abscess around the great vessels of the neck. The right ear also suppurated. The reporter suggests that the discharge be cured if possible, or, at least, that the case be rendered as aseptic as possible before this operation is undertaken. If earache occur the patient should be most carefully watched. The second case was one of diplococcal pyemia and malignant endocarditis following the removal of adenoids and enlarged tonsils in a girl of four. Post-mortem examination showed that in the larynx the false chords were considerably swollen.

There was no tracheitis. Both lungs were uniformly mottled red and white, the red areas being about ¼ inch in diameter, some petechial and subserous in character, others deeper (collapsed areas). Most of the petechial patches showed a small, white, shotty head about the size of a pin's; these projections could be well felt on drawing the fingers over the surface. They were minute pyemic foci. There was no bronchopneumonia, and the bronchial glands were not enlarged. In the heart the tricuspid valves contained two sets of recent vegetations, one the size of a pea, the other of a grain of wheat. Smears from these revealed numbers of capsulated diplococci staining with Gram's method. The liver was large, and showed cloudy swelling; the spleen large and moderately soft; the kidneys swollen, and their cortex very pale. In the ileum were a few minute submucous petechiæ and Peyer's patches were slightly eroded; some lymphatic glands at the base of celiac axis were enlarged and firm; the glands along the course of the iliac vessels were dark red in color. The urine drawn off p.m. contained albumin.

The third case was one of streptococcal otitis media and basal meningitis in a boy of five years. The post-mortem examination (brain only) showed: A thick, yellow, purulent exudation all round the base of the brain, the optic tract, medulla and pons, and between the cerebral hemispheres. It extended into the fourth ventricle and iter. In the third and lateral ventricles the exudation was turbid. In the ependyma of the latter were numerous minute petechiæ. One purulent exudation extended into the vertebral canal. The convolutions of the vertex were flattened. The left middle ear and mastoid cells were full of pus, the right healthy. Both cavernous sinuses, but especially the right, contained a turbid exudation. The lateral sinuses were occupied by dark clot; in the left one, a white a.m. clot extended into the internal jugular vein. The sphenoidal cells were healthy. Microscopical examination of films of the exudation showed numerous streptococci (*s. brevis*). T.

ORIGINAL ARTICLES

MIDDLE EAR INFLAMMATIONS IN CHILDHOOD AND THEIR RELATION TO DEAF-MUTISM.

By Gordon King, M.D.,
New Orleans, La.

IN the treatment of children for the various ills and accidents to which childhood and infancy are so unfortunately prone, the general practitioner is burdened with a responsibility to the great importance of which he should never grow indifferent. He should be keenly alive, not only to the prevention and cure of these diseases which ravage the early years of life, but must ever be watchful of those apparently simple and harmless conditions which, when too carelessly overlooked, may lead to permanent impairment of important functions or to fatal complications.

The subject for our consideration now, the middle ear inflammation of childhood, while defined as one of the commonest affections of childhood, has been most wisely chosen, and merits the closest study in all its phases by every practitioner of medicine.

There is an unfortunate tendency among many family physicians as well as the parents to attach too little importance to what is lightly spoken of as only an earache or a running ear.

How fatal an error this is can be but poorly estimated by the statistics of death among children attributed to this cause, for in the large mortality list credited to acute meningitis, scarlet fever, measles, etc., where the ear is so often the seat of most serious complications, the cause of death is generally attributed to the general disease itself and the ear condition is not mentioned as a factor in the result.

We recognize in general two forms of acute inflammation involving the middle ear—acute catarrhal otitis media and acute suppurative otitis media, either of which if allowed to take its course may become chronic and sooner or later cause

serious injury to the delicate organ of hearing or give rise to grave disorders in some of the important neighboring organs.

As these two forms are so closely allied and not always easy at first sight to differentiate, and as they both deserve the same rigorous lines of treatment, we may study them under the general classification of acute otitis media.

The acute catarrhal form is in many cases simply the initial stage of the suppurative otitis and is to be looked upon in the same light as far as treatment is concerned.

Where the inflammation is primarily suppurative the symptoms are of greater intensity and lead more rapidly to serious consequences than when the infection is milder in character and the inflammation of a catarrhal nature.

In either instance the mucous membrane lining the tympanic cavity becomes the seat of marked congestion, rapidly leading to an exudation of a catarrhal or purulent liquid which, finding no avenue of escape, causes pressure on the tympanic membrane and soon ruptures and discharges through the auditory canal or forces its way into the mastoid cells.

When the inflammatory process extends from the nasopharynx, as is usually the case, the Eustachian tube becomes occluded by tumefaction of its lining membrane, and in most cases, it is stated, the mucous lining of the mastoid cells also participates in the inflammation.

The onset of acute otitis is accompanied by pain in the ear, of a sharp, lancinating or pulsating character, the intensity of which depends upon the virulence of the infection and the extent of the inflammatory process.

The pain is more intense during the night, and in infants is usually evidenced by great irritability and shaking the head from side to side or by putting the hand to the side of the head. The indications of these symptoms may be easily overlooked in very young children or wrongly attributed to other causes, especially where the ear inflammation comes on in the course of an acute febrile disease, and the first recognized symptom is a discharge from the ear-canal after rupture of the drum membrane has occurred.

The temperature rises sharply with the advent of ear involvement and may reach 105° F. in some cases, subsiding quickly with the pain when discharge begins. Occasionally an attack may be ushered in by a convulsion and evidence of cerebral congestion.

Deafness begins early and persists in varying severity throughout the course of the disease and too often remains as the only vestige of the affection when all the inflammatory element has disappeared.

Examination of the ear will reveal, in the first stages, well marked hyperemia of the tympanic membrane which may extend also to the deeper portions of the external canal; before rupture takes place the membrane becomes prominently bulged out and may lose its usual luster and appear thickened and covered with desquamated epithelium, giving it a grayish-white appearance.

After the membrane has ruptured the canal is filled with the secretion from the tympanic cavity, which obscures further view until removed by syringing or mopping out the canal and the seat of the perforation is revealed.

The discharge is at first usually serous or watery in character, or may be mucopurulent or pure, creamy pus.

In the chronic form of middle ear disease the catarrhal and suppurative varieties are well defined and pursue different courses. The catarrhal or non-suppurative form may be still further divided into the exudative and the sclerotic forms. The former is accompanied by a collection of mucus or serum in the cavity with a strong tendency to the formation of adhesions of the drum membrane to the inner wall of the tympanum and anchyloses of the ossicles. The sclerotic form is characacterized by atrophy of the drum membrane and fixation of the stapes in the oval window. Insidious and gradually increasing deafness, accompanied by tinnitus aurium, may be the only subjective symptom.

The catarrhal form is more frequent in children, while the sclerotic variety begins after puberty and in later life, and is strongly influenced by heredity. In neither variety does perforation of the drum membrane take place followed by a discharge as in the acute stages, nor does pain play any part in the mild inflammatory process.

The suppurative form is characterized by a discharge of pus from the tympanic cavity with always more or less destruction of the drum membrane, the ossicles or even of the bony walls of the cavity itself. If the inflammation has been severe or of long duration the discharge is usually a fetid, creamy pus and great destructive or inflammatory changes are apparent in the tympanum as evidenced by partial or complete absence

of the membrana tympani or one or more of the ossicles, and the formation of cicatricial tissue or granulations about the seat of suppuration. This is also accompanied by varying degrees of deafness which grows progressively worse with the advance of the suppurative process and the disorganization of the sound-conducting media.

Thus we have a brief clinical picture of otitis media in its usual forms, and the sooner we are able to recognize the condition and apply effective measures of treatment, the shorter will be the course of the inflammation and the smaller the chances of serious consequences.

As the subject of the methods of treatment is to be discussed at length in the papers to follow I shall go no further than to advocate prompt attention to the initial symptoms, early puncture of the drum membrane to establish drainage, and careful antiseptic cleansing of the ear and nasopharynx. Treatment of the chronic forms depends upon the special character of the individual case.

A word, however, as to the prevention of middle ear disease, for a proper understanding of which we must refer to these conditions which commonly predispose to its production.

Acute middle ear inflammation in a large majority of cases, particularly in children, has its origin in disease of the nasopharynx, the most potent underlying factor of which is the presence of adenoid growths.

Children of the lymphatic type are unusually prone to this condition and we might safely state that a child having an adenoid growth in the nasopharynx seldom escapes some ear affection before arriving at the age of puberty, when atrophy of the gland takes place.

Too great importance cannot be attached to the removal of these growths for the influence they bear on the production of ear disease and improper development or disease in other organs. By their early removal we accomplish the most important prophylactic measure in destroying the ear's most dangerous enemy.

Dentition in infancy is a period in which the ears are often the seat of inflammatory disturbances.

Next in order to nasopharyngeal diseases must be mentioned the exanthemata, measles, scarlet fever, and then influenza, smallpox, mumps, cerebrospinal fever, typhoid and

pneumonia. Our text-books on general medicine are, in great measure, responsible for the inexcusable lack of attention given to ear complications in the study of these diseases; for if the practitioner is fully aware of the frequency and virulence of ear involvement in these cases and is alive to the necessity of using prophylactic measures and keeps a sharp lookout for any evidence of danger from this quarter he may be armed with the means of protecting his little patient from at least a few of the dangerous breakers encountered in the course of these affections.

Especially is this true of scarlet fever, measles and influenza, where the pharynx is one of the virulent foci of infection, and should in all cases be subjected to constant antiseptic cleaning throughout the course of the fever.

Among other less frequent causes of acute otitis media may be mentioned direct exposure of the ear to cold, surf-bathing and diving, direct traumatism, the improper use of the nasal douche, foreign bodies, etc. These are causes that are more prolific in later life, however, and are not so often noted in childhood, which is much less exposed to such accidents.

While otitis media may in itself give rise to but slight inconvenience after the acute stage is passed and may be disregarded and almost forgotten by the patient, the complications that may arise from it at any time are often of a fatal termination.

The intimate anatomic relationship of the tympanic cavity to the cells of the mastoid process, to the brain and its coverings and to the sigmoid sinus and facial nerve demonstrates clearly enough the danger to these important structures that attends a suppurative process at this point.

It is easy enough to follow the route of infectious material that passes along the aditus ad antrum to set up a new focus of suppuration in the mastoid cells, that attacks the osseous wall covering the lateral sinus and the meninges to give rise to sinus thrombosis or meningitis, or finds its way through the thin tympanic roof to light up another focus of infection in the meninges or brain itself.

Propagation of the infectious material may lead to general septicemia or to the formation of metastatic abscesses in other remote organs, such as the lungs, which are the favorite seat of pyemic deposits.

Time is not given me here to discuss in detail each of these harmful complications, but we should ever be watchful of the condition that gives rise to them and be ready to offer the promptest treatment; for in the ability to recognize the initial manifestations of the extracranial and intracranial complications of middle ear suppuration and to apply bold and vigorous measures of treatment, lies our best chance of avoiding fatal consequences.

Some idea of the frequency with which death occurs as a result of middle ear inflammation may be derived from these brief statistics:

Burkens found 104 deaths in 33,107 ear cases, and Randall 15 in 5,000, giving a percentage of 3-10ths of 1 per cent. from intracranial disease.

Schwartz records 30 deaths in 8,425 ear cases, or 0.35 per cent.

The death rate from purulent ear diseases, compared with all other diseases treated, was shown in Guy's Hospital, in London, some years ago to be 57 deaths among 9,000, or two-thirds of 1 per cent.

Forty thousand and seventy-three autopsies in the Vienna General Hospital showed 232 deaths from otitic complications, i.e., 0.58 per cent.

The majority of these deaths occurred in the course of chronic suppuration of the middle ear, complications in the acute stage, with the exception of mastoiditis, being less frequent.

While I have given grave attention to those complications of middle ear disease which endanger life, I have said but little concerning the injurious and destructive consequence to the function of hearing that result from suppuration within the tympanic cavity.

In the large percentage of deaf people whom we meet in everyday life the majority can trace their infirmity to ear disease during childhood.

The degree of permanent deafness caused depends upon the extent of the destructive process and the disorganization of the sound-conducting apparatus, and may vary from a scarcely noticeable impairment to almost complete deafness to ordinary sounds.

It is this latter severe form and its relation to what we term "acquired deaf-mutism" which I now propose to consider.

We see the deaf-mute asylums all over the world peopled with a silent horde of unfortunate beings, at least 50 per cent. of whom, it is computed, are afflicted with "acquired deaf-mutism," that is to say, they were born with a normal sense of hearing which was lost in infancy or early childhood and the power of speeeh left undeveloped. It would be unreasonable to suppose that this large percentage of deaf-mutes could have been saved from their infirmity, but without doubt a considerable proportion could have been preserved had proper and timely treatment been afforded them at the time their ears were affected.

The proportion of deaf-mutes varies considerably in different races and different countries.

Hartmann, of Berlin. in his exhaustive study of the statistics of deaf-mutism, found in 246,000,000 people, 191,000 deaf-mutes, giving an average proportion of 7.77 per 10,000 individuals. The lowest proportion was found in the Netherlands and the highest in Switzerland, which showed an average of 24.5.

Deaf-mutism is more prevalent in mountainous regions than in flat countries. The United States, with its wide range of climate, altitude and cosmopolitan population, showed a general average of 7.31 deaf-mutes for every 10,000 inhabitants.

The infirmity whether of the congenital or acquired form predominates in males. As the congenital form is usually considered incurable, and is not of interest in this connection, we shall only consider the acquired form which, as has been proven, comprises half the deaf-mutes in the world.

The records of the Eye, Ear, Nose and Throat Hospital show that in the service of Dr. A. W. DeRoaldes (ear, nose and throat department), 12,137 ear cases have been treated in the past eleven years. Of this number, 8,152 (nearly 2-3) were diseases of the middle ear, a large percentage of which were in children. Among these cases 55 deaf-mutes are recorded, 27 of the congenital form, 18 acquired and 10 unclassified.

The child learns speech by imitating the speech of others, and when the sense of hearing is destroyed or so defective as not to perceive the sound of the voice, the child fails to develop the power of speech and remains dumb.

When deafness occurs below the age of seven years, almost without exception the child loses its memory of speech and

becomes dumb, unless strenuous efforts are made to cultivate the faculty and preserve the use of those words already learned.

Dumbness has been known to occur when deafness came on as late as the fifteenth year, according to Hartmann, but in the majority, according to Robertson, deaf-mutism develops before the age of three years.

In a vastly large percentage of cases the pathologic process is situated in the internal ear, involving the labyrinth or the auditory nerve, but a surprisingly large number of such cases have an accompanying middle ear inflammation; the frequency with which middle ear diseases are found in the cases of supposed congenital deaf-mutes has often been remarked.

Labyrinthine diseases are outside the pale of our discussion, so I must limit myself to the consideration of cases in which the middle ear disease alone has caused sufficient deafness to produce deaf-mutism.

In such cases we find marked changes in the tympanic cavity, resulting from severe and prolonged inflammation, such as complicated scarlet fever, pneumonia, measles and diphtheria, where the chain of ossicles may become necrosed or exfoliated, the drum membrane slough, or the cavity itself become obliterated by organized exudate or cicatricial bands.

In some cases closure of the oval and round windows by osseous formation in the acquired form show the effects of intense middle ear inflammation. This condition is very infrequent, according to Saint Hilaire, in congenital deaf-mutism.

Anchylosis of the ossicular chain is found frequently enough, but this lesion alone is not considered sufficient in itself to cause deaf-mutism and where it exists is associated with ossification of the oval window or labyrinthine derangement.

The Eustachian tube is sometimes found to be occluded also by exostoses or formation of fibrous tissue.

When these changes have taken place we have but little to effect by treatment aside from the occasional improvement to be derived from removal of the anchylosed chain of ossicles, and breaking up apparent adhesions and cicatricial formations about the tympanic membrane and the oval window.

If suppuration is still present, drying up the discharge is always indicated as the first resort, and this may lead to considerable improvement in the hearing power.

Prophylaxis and the careful treatment of the disease early in its course is the surest means at our command for the prevention of deaf-mutism from this cause.

The child that loses its hearing beyond redemption should be given every advantage to retain what speech he has learned or to acquire the power of speech by the modern methods of teaching.

There are two methods by which deaf-mutes are educated —the so-called French system, consisting in the finger alphabet and other signs and gestures, and the German oral method, which consists in the employment of articulate speech and lip-reading.

The latter is by far the most advantageous method, but requires great skill and patience on the part of the teacher and intelligence on the part of the pupil. It is the system now practised in all modern schools and asylums for this unfortunate class of human beings.

We have heard all kinds of objections to the application of vaccination as a prevention in epidemic smallpox. We have been told of its dangers as well as the false logic of its theory. And yet, so far as we can learn, no authentic statistics have been given which should prejudice the principle nor, on the other hand, have we been furnished with absolute proof that any other management of the disease is more satisfactory. The objectors should first prove the inefficiency of vaccination. Point out the uniform dangers and at the same time furnish us with a better means of combating the disease. In this age of progress we should always be willing to be convinced of error and stand ready to accept any new suggestion which may safely supplant an old theory. Until this can be done we should just as surely hold fast to that which, so far, has been accepted by the majority of careful students as a positive prophylactic.—*The Clinique* (Homeopathic).

ENLARGEMENT OF THE BREASTS IN ACUTE TUBERCULOSIS.*

By W. F. Boggess, M.D.,
Louisville, Ky.,
Professor of Medicine and Diseases of Children in the Kentucky School of Medicine, etc.

WE have seen quite frequently enlargements of the breasts in tubercular patients, but only last week I saw a little girl, about 15 years of age, who had what seemed to be an acute tuberculosis of the lungs and in whom both breasts were very much enlarged and very red. The breasts looked as if they were going to suppurate and a great deal of trouble was anticipated with them, but after a week or ten days, with local applications, they have subsided and at present they are about normal in size.

Hypertrophy of the breasts during tuberculosis is not uncommon, and we see it possibly more often in males than in females. The older text-books were right when they stated that this condition occurs more frequently on the side where the lung is most affected than on the opposite side.

The peculiarities in this case are, the intensity of the inflammation, both breasts being greatly enlarged, and that it should have subsided so quickly. I do not think that we know what the pathology of this condition is; it is not tuberculosis of the breasts; oftentimes very little in the way of pathological change is noted.

I would like to know the experience of the society, whether such breasts ordinarily break down, whether we have suppurative processes in that class of consumptives. The girl had hemorrhages, she bled profusely, and it seemed to be a case of acute tuberculosis. She is still alive. Her sputum contains tubercle bacilli and also purulent material,

DISCUSSION.

Dr. J. M. Krim.—Six or seven years ago I saw my first case of this kind, in a man whose wife had died of tuberculosis;

* Reported to the Louisville Clinical Society.

he finally acquired it and died about six months afterward. He had a large abscess in his left side which broke down and discharged for fully six weeks or two months after being opened.

Dr. F. W. Samuel.—I have been called upon twice to open tubercular abscesses of the breasts; both patients were women who had borne children and both had what was known as submammary abscesses.

Undoubtedly, as Dr. Boggess has stated, the microscope had already shown mixed infection as there was breaking down of the glands in the axilla and in the neck. The lymph nodes were enlarged, and the abscesses showed a large amount of cheesy material. Each abscess was opened at the side after lifting the breast up so as to get beneath the pectoral muscle, and a great quantity of cheesy matter was curetted out. I mention these cases in connection with the one that Doctor Boggess has reported.

Rapidly Fatal Scarlatina.

The most rapidly fatal case mentioned in Nothnagel's System of Medicine died in 26 hours; in Keating's Cyclopedia, in 24 hours. Bessey and Goodhart had seen cases die in 24 hours. W. S. Morrow (*Montreal Med. Jour.*, December, 1901) cites the case of a boy of 2 years and 11 months who came in from play and felt sick and vomited at five o'clock in the afternoon, had a loose, dark-colored stool in the night, played with his brother in bed the next morning, ate a baked apple at noon and died in convulsions at half-past five. No physician was in attendance, but four hours after death reddish patches were visible on abdomen and thighs, the glands at the angle of the jaw were enlarged, and, on prying open the mouth, the tonsils were seen large and red, the redness extending upward on to the palate. The viscera were negative. A scarlatina epidemic was raging at the time, and a brother developed the disease a few days later.—*Med. News.*

ROETHELN.*

By C. C. Ross, M.D.,
Columbus, Ohio.

THE affection known as roetheln is so mild in character and simple in treatment that it would be almost devoid of interest were it not for the question of its diagnosis, which is sometimes difficult to make. The doubt by some of its being a separate disease from measles and scarlet fever gives additional interest to the subject.

Possibly, of the exanthematous diseases, there is none at present about which there is so much difference of opinion as roetheln. Some deny that such a disease exists, others that it is either a form of rubeola or scarlet fever. It is likely that this honest difference of opinion will exist for some time and the writer believes that when the confusion has cleared away, roetheln will be regarded without a dissenting voice as a distinct disease.

Certain it is that it has a characteristic course of its own, resembling, it is true, in some respects, both measles and scarlet fever, and yet having stages of incubation, invasion and eruption so different from these diseases that it seems to me entitled to be regarded as a separate disease.

Of more importance than all else in proving its distinct character is the fact that one attack of roetheln will not give immunity against either measles or scarlet fever, and that these later diseases will not give immunity from roetheln.

When we consider the fact that it is rare for either measles or scarlet fever to occur the second time in the same individual it seems strange that there should be any doubt as to the matter.

Very likely one of the greatest causes of confusion is due to the great number of names given the affection. The name most frequently used is roetheln or the common name of German measles. Other names are applied, a few of which are rubella, French measles, roseola epidemica, hybrid scarlatina, false and bastard measles. The Germans use the name rubeola, which is very confusing, as by it is usually meant measles.

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* Read before the Columbus Academy of Medicine, Feb. 3, 1902.

For many years the early writers were accustomed in their descriptions of measles to mention a form known as *rubeola sine catarrho.* They recognized that this form did not give immunity from measles and scarlet fever. These cases were undoubtedly those of rotheln, and by the early part of the nineteenth century many were regarding it as a separate disease. Previous to this, in the latter part of the eighteenth century, Stark, with others in Germany, described in detail an epidemic that had occurred of a mild form of measles and claimed that it might be separate from measles. This seems to be the first description of the affection apart from measles.

Since then it has steadily gained in recognition as being a separate disease, and at present the majority favor it being such. Chief among those who doubt this, I believe, are Henoch and Jürgensen.

Stage of incubation.—The length of this period is not yet fully determined. It is variously given at from five days to three weeks, while the majority favor its being from twelve to fifteen days.

Stage of invasion.—The manifestations of this stage are often absent, which makes it difficult to ascertain. When symptoms of it are present it seems to be from one to three days.

Clinical history. In describing the history of this disease the writer will relate a case that seems to cover the chief points.

Miss T., aged 19 years, has had measles, and been in good health. For twelve hours has complained of slight malaise; first noticed an eruption on the face; examined patient at 5 p.m.; there is some cough, slight suffusion of eyes and no sneezing; temperature 100° F. There is an eruption macular in form on face, chest and back. The mucous membrane of mouth shows some redness, which is more marked in the throat, it being slightly sore; diagnosis, roetheln; 9 a.m. next day temperature is normal, patient feels well; eruption nearly gone from face; would escape detection unless observed closely; same on chest.

The features contained in the above case embrace the chief points in the clinical picture of roetheln. The very slight malaise lasting for a few hours is often determined never in the treatment of children as they do not complain. The first sign of importance noticed by the patient is the eruption. It will appear on children who have taken the disease, while at play

or at school, and is often found by the parents on waking in the morning. It appears first on the face, spreading down to the trunk. It fades rapidly and is often gone from the face in twelve hours, or by the time it appears on the trunk. In most cases there is noticed a slight sleepy look to the eyes; there is often a mild cough, but this is frequently absent. The throat is nearly always sore—mild in character with enlargement of the tonsils. The mucous membrane of the cheeks and lips is slightly congested; the throat and mouth symptoms are generally present.

The temperature in young children is frequently normal, and rarely higher than 103° F.; if any at all it is usually 100° F. It is at its highest when the eruption is first appearing and disappears in from 12 to 24 hours. The exanthem resembles measles both as to location and form; it fades often within 12 hours, is usually gone in 24 hours and rarely lasts longer than two days.

It appears first on the forehead, cheeks, chin and neck, and spreads down over the trunk. It is deep red in color, the spots being raised, maculo-papular in form, and does not often become confluent when it does; this condition is more liable to occur on the face. Often there is a deep erythematous appearance of the skin before the eruption begins to appear; in this case it is attended with itching. The dark spots that remain for some time after the eruption of measles fades are never seen in roetheln.

It is indeed difficult to give a description of the exanthem without including much that would apply to measles, so much alike are they.

Diagnosis.—In making a diagnosis of roetheln one cannot depend alone on the exanthem. The mild catarrhal symptoms, absence of any marked fever, the rapid progress of the disease, which fades without marked desquamation—these symptoms when contrasted with the same that occur in measles, all increased in severity and longer in time, give an entirely different picture. In measles the soft palate, cheeks and lips are intensely red and congested, while on the lips or cheeks can be found the Koplik spots, which never occur in roetheln. In my judgment this is the decisive test in doubtful cases, and I never hesitate to diagnose roetheln in cases in which the sign is absent. The subsequent history of these cases will invariably prove the correctness of the diagnosis. Of the greatest importance is a careful study of the mucous membrane, for, unlike

measles, it is not a disease of the mucous membrane. Therefore in diagnosing this disease more attention must be given to the attendant symptoms than to the exanthem.

It is only in mild cases of scarlet fever that there need be any question as to differentiation. In these cases the same symptoms that occur in the more severe forms will give a clear diagnosis.

Erythema and urticaria might be confused with roetheln but the difference is so great that a mistake is not justifiable.

The treatment of roetheln is simple, many cases requiring absolutely nothing. The chief thing is to keep the child indoors for several days.

I desire to further illustrate the clinical features of roetheln, by reporting a few well-marked ones:

Case 1, April 30.—Male child, 6 years old; he never had measles; parents noticed eruption on face and trunk, coughed some but did not sneeze; temperature 99° F. The eruption is on face, chest and abdomen; it is macular, slightly raised and not confluent; mucous membrane of mouth and cheek nearly normal; no Koplik's spots; throat mildly sore; child does not feel bad. April 21, eruption is fading; gone from face; child feels well. April 22, eruption has gone, and no desquamation.

Case 2, April 26.—Male child, 1 year old; breast fed; he never had measles; he was a brother to Case 1. Parents noticed child had not been well for two or three days; coughs and sneezes some; eyes slightly congested; temperature 100° F. The mucous membrane of mouth and throat is slightly more red than normal; no Koplik's spots. The eruption is out on face and chest and very much resembles measles. April 27, eruption has faded, and no desquamation; the child feels better.

Case 3, May 2.—Male child, 3 years old; had measles well-marked four weeks ago. Parents noticed in the morning an eruption on face and body; there is slight suffusion of eyes; mucous membrane of mouth and throat very slightly congested; no Koplik's spots. The eruption is macular and papular, occurring over face and trunk; temperature is normal; child does not complain. On May 3d the eruption was nearly gone.

Case 4, May 16.—Miss W., 16 years old, says she never had measles; has been visiting at home of last case for two

weeks; has been feeling ill for a day and a half; coughs and sneezes, and there is suffusion of eyes; temperature 101.4° F. The mucous membrane of mouth and throat is somewhat congested, and the congestion is more marked on soft palate; no Koplik's spots; the eruption is on the face and trunk; the exanthem is well defined, confluent on the cheeks and deep red. On May 17 the temperature was normal, and the patient felt well; the eruption is fading.

Case 5.—Male child, 5 years old; never had measles; sick one day; parents noticed eruption on face and chest; there is some cough; eyes freely congested with photophobia; temperature 201° F.; eruption very much resembles measles. In 48 hours eruption has faded without desquamation. This case had well defined measles one year and a half later.

In connection with the characteristic symptoms of the cases I have selected also are points bearing on the stages of incubation and invasion with the additional feature of its contagiousness.

Case 1 and 2 occured in the same family, the two following cases were in another family, located about 100 yards away, across a vacant lot. There was an interval of 12 days between the outbreak in the two families, and from 10 days from time of exposure in Case 3. This gives in both cases an incubation stage of 12 to 14 days. Cases 2 and 4 showed stages of invasion from one and a half to two days. Case 3 also shows that measles does not give immunity from roetheln.

Case 5 could very easily have been mistaken for measles, but the after-history proved that there was not immunity from measles.

After studying this disease the conclusions are that roetheln is an acute, contagious, epidemic, exanthematous disease, occurring separately from either measles or scarlet fever. That it has a stage of incubation of 12 to 15 days, of invasion from one to two days and of eruption from twelve hours to two days. That the exanthem fades with practically no desquamation. That there is nearly always mild sore throat with slight catarrhal symptoms of eyes and mouth. That a careful observation of the conditions of these mucous membrane with especial reference to Koplik's sign is of great importance in diagnosis.

1075 Oak Street.

SOCIETY REPORTS

NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting January 9, 1902.

R. G. Freeman, M.D., Chairman.

Congenital Asymmetry or Hemiatrophy in an Infant.—Dr. A. Hymanson presented this patient, an infant of six months. The right upper and lower extremities were shown by actual measurement to be both longer and larger in circumference than these extremities on the other side. Apparently also the internal organs on the right side were larger than on the left. The rarity of this condition may be inferred from the fact that Dr. Hymanson was able to find only about a dozen such cases on record.

Dr. S. H. Dessau said that he had a similar case some years ago, which differed from the one just presented chiefly in the fact that the child was the subject of congenital rickets.

Spasmus Nutans.—Dr. C. Herman presented a case of this kind, occurring in a child of 18 months, born normally of apparently healthy parents. The nodding dated back to an attack of measles when 13 months old. There was no history of injury, and although the child lived in a rather dark room, no artificial light was used. As pointed out by Dr. A. Caillé, the motions of the head could be controlled by covering the eyes. The existence of nystagmus was evident when looking to the left and was more marked on holding the head, but it was almost inappreciable when looking to the right. As in most cases of this kind, rickets was present. He had tried the bromides in several such cases with negative results, and one's chief reliance should be in hygienic treatment. The prognosis was good.

Dr. Louis Fischer said that some authorities were beginning to point out the apparent uselessness of phosphorus in rachitis, and his own experience with this remedy would lead him to coincide with that view.

Dr. Dessau said that he had employed phosphorus for many years in cases of rachitis, administering it in the form of elixir of phosphorus of the U.S.P. He had usually observed very decided improvement after such medication, but as he made it a rule to give cod-liver oil also, one could not say exactly how much credit was to be given to the phosphorus.

Dr. H. S. Stokes said that he had seen five or six cases of spasmus nutans, not one of which was rachitic. They had usually given a history of traumatism.

The Effect of Heat Upon Cow's Milk as an Infant Food.—(See Pediatrics, Vol. XIII, No. 3). Dr. S. H. Dessau read this paper.

Dr. J. Finley Bell, of Englewood, N.J., remarked that while the heating of cow's milk in a closed vessel to 140° F., would destroy most of the pathogenic germs, it was not yet known whether or not it would destroy the anaërobes.

Dr. Max Einhorn said that his own experiments showed the curds to be just as course after the heating of milk as without it.

Dr. L. Fischer objected to both sterilized and pasteurized milk on the ground that they caused troublesome constipation. Last year, following out the theory of Russell, he had given a number of children milk that had been heated to 140° or 150° F., and while such milk was certainly much more digestible, he thought it very risky to give infants milk that had not been heated higher than 167° F. unless one could be assured of the excellent quality of the milk.

Dr. Rowland G. Freeman said that Dr. Dessau had made it appear that sterilized milk had been the original cause of scurvy but such was not the case, for the collective investigation conducted by the American Pediatric Society showed conclusively that sterilized milk was not responsible for more

than 16 per cent. of the cases, the majority being really traceable to the use of patent foods. Scurvy, it should be remembered, was really the result of taking an unsuitable food rather than any particular preparation. Some years ago he had make some experiments to ascertain what effect, if any, sterilization and pasteurization of milk had on the curd, but he had not been able to satisfy himself that the heating of the milk had any influence on the process of coagulation. The dangerous pathogenic germs found in milk could not be destroyed by heating the milk to 140° F. for ten minutes; it could only be done by keeping the heat at least 160° F. for half an hour.

Dr. Dessau said that as he did not make use of sterilized milk except during the heated term he had not noted any special trouble from constipation. It was rare at the present time for physicians to prescribe sterilized milk as a daily food.

Chemistry of the Stomach in Children.—Dr. Louis Fischer read a paper on this subject. Some of the examinations were made upon the gastric contents, obtained by siphonage with a No. 6 or 10 Nelaton catheter two or three hours after feeding, while other examinations were made upon the vomited matter. The chemical examination consisted in testing the filtered chyle for hydrochloric acid, lactic acid, propeptone, peptone and rennet. A series of ten breast-fed infants constituted one series. In five of these children the coagulum of milk was very fine, but in the other five, who were children suffering from rachitis, syphilis and like disorders, the coagulum was coarse. Hydrochloric acid was present in all but two of these. Five bottle-fed children were also made the subject of examination. In them the vomited matter ejected two or three hours after feeding was usually thick, lumpy and acid. Hydrochloric acid was absent. The acidity was usually due to lactic acid, but occasionally to acetic or butyric acid. There was also very little propeptone and peptone. One fact that he had noted which might prove of some practical value, was that while both mild and severe cases of diphtheria showed an absence of hydrochloric acid in the stomach contents during the heighth of the disease this acid returned during convalescence. It was also interesting to note that in one case of malignant diphtheria the hydrochloric acid returned 48 hours after the administration of antitoxin. His examinations showed that

there was a constant antagonism between the lactic and hydrochloric acids, the former being normally present at the commencement of digestion and the latter taking its place towards the completion of the digestive process.

Dr. Einhorn said that he too had examined a series of normal children, both breast-fed and hand-fed, but in only two had he found free hydrochloric acid present. These children had varied in age from three to eighteen months. Dr. Fischer's examinations had been made under difficulties, for he had used milk as the food instead of a test-meal. As milk contains a large proportion of albuminates, which unite with the hydrochloric acid, it followed that small quantities of free hydrochloric acid would be masked by the ingestion of milk. It was because of this that the test-meal of roll and tea—substances containing little albuminate—had been employed by most observers. While it was a general rule that hydrochloric acid was absent during febrile affections, this was not invariably the case. He had noted the presence of hydrochloric acid in some adults having typhoid with marked pyrexia. The observation mentioned in the paper concerning the behavior of the hydrochloric acid in diphtheria did not seem to him to be of importance further than as evidence that the bodily functions approached the healthy standard as the disease declined. Mention had been made of massage of the stomach as a therapeutic measure; to his mind it was not altogether free from danger.

Dr. M. I. Knapp said that he had been studying the tests for acetic, butyric, citric, lactic, oxalic, and a number of other acids, and had noted that all of them reacted to a greater or less degree to Congo paper. Günsberg's reagent he had found very useful, but a still more delicate reaction was obtained with ammonio-citrate of iron and potassium ferrocyanide, which form a blue color only in the presence of an inorganic acid. He, too, was opposed to massage of the stomach, not only because it tended to diminish the acidity and was rarely beneficial but because he had known it to cause hemorrhage in two instances.

Dr. Fischer said that the cases of diphtheria in which he had noted a diminution or arrest of the gastric secretion had

not been accompanied by high fever. Massage should be performed only by a properly qualified operator, and was then exceedingly useful in infantile constipation. Among the drugs which he had found especially useful in this class of cases nux vomica and dilute hydrochloric acid stood at the head of the list.

Courvoisier's Law.

Of distinct value in practical diagnosis is the observation of Courvoisier, made in 1890, in regard to the enlargement of the gall-bladder from the obstruction of the common duct.

The law is this: When the common bile duct is obstructed by stone, the gall-bladder does not enlarge, whereas when the obstruction occurs from other causes enlargement is generally present.

In explanation of this anomaly it is suggested that if there be a stone in the common duct there are probably several others in the gall-bladder the presence of which excites inflammatory action, this in turn being followed by a contraction of the tissue walls of the viscus.

Courvoisier reached his conclusions upon this point after analyzing a large series of cases, and Cabot, of Boston, has lately confirmed the findings in 86 cases studied at the Massachusetts General Hospital. Of this number 57 obstructions were found due to gall-stones, and in but 2 of the number was the gall-bladder enlarged. In 29 other cases the obstruction was of a different character (organic stricture, pressure effects, anatomical variations, etc.), and in only two of these did no enlargement occur.—*Clinical Review.*

BOOK REVIEWS

Reports of the Society for the Study of Disease in Children; vol. 1, 8vo, pp, xxxix, 238. Session of 1900-1901. Edited by Sydney Stephenson, C.M., George Carpenter, M.D., and Theodore Fisher, M.D. J. & A. Churchill, London. Price, $5.

This book is a model of its kind, and is full of interesting and original material. The illustrations are numerous and good. The color-plates of tubercular choroiditis, to accompany the article on the same subject, by Drs. Carpenter and Stephenson, are the most beautiful we remember to have seen. The index appears to be complete, and the press-work and binding are exceptionally pleasing. B.

Incontinence of Urine.

In incontinence of urine in children, antipyrine has proved to be useful in large doses. Take 2 dr. of antipyrine and dissolve it in 1 oz. of water and add 1 oz. of alcohol. Take one teaspoonful at bedtime.—*Medical Herald.*

Blue or Green Urine is often due to the eating of candies that have been colored with methylene blue. In the absence of other explanation, inquiry may be advantageously directed to this subject. —*N. Y. Med. Jour.*

PRACTICAL NOTES

Follicular Conjunctivitis.

Mild cases may be cured by rubbing the everted lids with copper sulphate or alum and washing the excess off with sterile water. This may be done two or three times a week, in the interval a solution of zinc sulphate, 0.2-0.4 per cent (gr. i-ij to ℥i) being instilled three times a day. But operative procedure is more rapid and very effective. With the usual aseptic precautions, and having applied cocaine, pass one blade of Knapp's roller forceps, or Gifford's forceps, well back into the conjunctival cul-de-sac, and the other over the everted conjunctiva, and with firm pressure pull from the eye. This breaks down and squeezes out the follicles. In the retrotarsal fold and near the canthi are points which cannot be reached by the Knapp forceps, and the Gifford instrument is better. After this procedure, mop the lids with bichloride (1-500) washing off the excess with boric acid solution or sterile water. Repeat every one or two days, using the zinc sulphate solution from one to three times a day.—J. W. Bullard in *West. Med. Review.*

The Remedy for Overcrowding of the Profession.

The president of the American Medical Association, Dr. John A. Wyeth, lately received the following inquiry from a correspondent: "What, if anything, should or could be done to regulate the number of young men studying medicine?" The correspondent added that for nine years he had been a member of a State medical examining board, and had noted no material improvement in the educational qualifications of applicants, but a constant increase in their number.

In his reply Dr. Wyeth said: "In my opinion there are too many medical colleges, and graduation in medicine is made too easy. Even after they have graduated, they should not be allowed to practice until they can pass a rigid practical as well as theoretical examination. For the general good, I would

say that a man entering the profession of medicine as a student in college should have a very good classical education, for this implies a sufficiently thorough education in other departments of study. He should be vouched for as a man of refinement and honor. He should then study at least four years at a good school and at least one year in a post-graduate school or hospital. The final examination for practice should include bacteriology and the microscope and chemical analysis as applied to practical medicine."—Editorial, *N. Y. Med. Jour.*

Frost Bite.

Protect the hands, feet and ears, especially in children. When frostbitten, rub parts with camphorized alcohol and apply:

Starch.....9 parts
Salicylate of bismuth.....1 part

Apply tincture of iodine pure, or paint on each night:

Glycerine.....20
Tinct. iod.....10

—Comby.

To calm itching at night, apply:

Glycerini.....50
Aquæ rosæ.....50
Tannin.....0.10

—C. Besnier

When ulceration has occurred, apply morning and night:

Borax.....5
Vaseline.....30

—*Med. Fortnightly.*

The Possibility of Wounding the Carotid in Tonsillotomy.

St. Clair Thomson discusses the possibility of wounding the carotid in tonsillotomy and states that hemorrhage following this operation in adults has never been shown to have been due to injury of the internal carotid. To avoid hemorrhage he makes the following recommendation: The avoidance of the guillotine in adults, the use of the smallest sized guillotine possible in order to avoid cutting the faucial pillars, rest for

ten to fifteen minutes after removing the gag. Bathing the face and neck with cold water, and if bleeding then persists, clamping any bleeding point with forceps, or, failing in this, the use of pressure, preferably with the finger.—*Am. Med.*

Membrane Following Tonsillotomy.

St. Clair Thompson says in the membrane following tonsillotomy, L. Harmer found in 31 out of 300 cases, it is usually about 2 mm. thick, is confined to the cut surface and appears a few hours after the operation. Examination showed absence of bacillus diphtheriæ and presence of streptococcus pyogenes, either alone or associated with staphylococcus albus and S. aureus. Histologically it showed leukocytes, fibrin and necrotic areas. Caution is advised as to performing tonsillotomy during an epidemic of diphtheria.—*Am. Med.*

Bromoform In Whooping Cough.

Dr. G. Carrierè (*Nord méd.*), January 15) recommends the following formula:

℞ Bromoform.....from 15 to 30 grains
Oil of sweet almonds.....7 drams
Powdered gum arabic.....300 grains
Syrup of bitter orange peel.....2 ounces
Water.....enough to make 8 ounces

M.—From 4 to 6 teaspoonfuls, according to age, may be given in the course of the day.—*N. Y. Med. Jour.*

Treatment of Laryngismus Stridulus.

The following is recommended for laryngismus stridulus occurring in children two years of age or older:

℞ Tinct. belladonnæ.....m. xii
Chloral hydratis.....gr. xx
Potassii bromidi.....℥i
Syrupi aurantii.....℥iv
Aquæ destil.....℥ii

M. Sig.—One teaspoonful every hour until difficult inspiration is relieved.—*Merck's Archives.*

ABSTRACTS

VEGETATING DERMATITIS DEVELOPING DURING THE COURSE OF INFANTILE ECZEMA.

GROVER WENDE and HERMAN K. DEGROAT (*Journal of Cutaneous and Genito-urinary Diseases*, February, 1902) report two cases of a rare skin condition. The photograph represents the case when first seen, that of a patient about eight months old. The trouble began with seborrheal eczema, starting on the scalp when the child was only three weeks old, later spreading to the face. This process was active or quiescent at different times, like that of a typical eczema.

In December, 1896, the mother first noticed pustules on the scalp, which rapidly developed into quasi tumors. On January 30, 1897, when the case first came under their notice, lesions of the same character were found on the face and scalp. Most of them were nodular, squamous masses, varying in size from a bean to a child's fist. The larger were made up of smaller ones, which had coalesced and assumed an irregular contour. The lesions appeared rough and scaly and on removal of the débris a vegetating appearance was seen. Often in the border of the larger groups as well as in their immediate vicinity many small pustules appeared. These were found scattered over the whole involved surface, and varied in size and stage of development. They were sometimes found in groups but were usually isolated. After removing the scales, oleate of mercury was applied twice daily. The lesions cleared up in three weeks and did not return. No scarring resulted, and their only remaining trace was a slight pigmentation.

The second case was first seen March 8, 1901, that of a child then six months old, who was reported healthy at birth, nursed by her mother and continued well until she was five weeks old, when a seborrheal eczema was developed at the vertex of the scalp, which, in four months, spread over the entire scalp. When she was about four months old, and during an almost complete remission of the eczema, the lesions which were especially to interest us began to develop. At first small and few in number they attacked the eczematous area, some appearing in groups while others were diffused. Others soon appeared, the older ones increasing in size, some becoming, in a very short time, as large as a walnut.

On examination, March 8th, the child then being six months old, the scalp still showed traces of the seborrheal eczema, but none was found on other portions of the body. On the scalp there were ten well developed lesions, varying in size from a pea to a hickorynut. These were well raised above the surrounding surface and were covered with crusts in which matted hair was embedded. On the forehead, near the median line, were two papillomatous lesions of filbert size, with uneven surfaces, covered with crusts, the entire mass being firm to the touch. The lesions

FIG. 1.

were well defined and the surrounding surface seemed healthy. On the right cheek, on a line with the nares, was a lesion surrounded by seven small discrete pustulo-papules, varying in size from a pinhead to a large pea. The small lesions contained very little pus at their apices, their bases were reddened and raised. On the left cheek was one large lesion the size of a 50-cent piece and 1 inch deep, composed of coalescent lesions; at two points a small amount of pus could be pressed out, and the most gentle manipulation resulted in bleeding. On the left leg, over the anterior surface of the tibia in its lower third, was an encrusted lesion about the size of a silver dollar. During the lapse of two weeks a number of minute isolated pustules appeared among those already formed. On the day following, in an effort to obtain bacteriological material, a crop of pustules appeared on the chest which showed upon examination three days later small isolated pustulo-papules extending over an area 3 inches wide by 5 inches long. There were about thirty of these lesions, from a

FIG. 2. Papillomatous lesion showing hyperplasia of rete.

pinhead to dime size, raised above the surface, each one of them surmounted by miliary pustules. Three of them appeared papillomatous and formed circular reddish plaques.

As to treatment, as already intimated regarding the first patient, in six weeks all evidences of the disease were removed. In the second case, the treatment was simple; crusts were removed with water, having been previously softened with oil. Antiseptic ointments were applied, oleate of mercury was used on the head and sulphur upon the body. Both applications acted equally well. In eight weeks the condition had entirely disappeared, although the treatment was discontinued for two weeks in order to obtain material for bacteriological examination.

Bacteriological Examination.—Cover-slip preparations from the miliary pustules showed plenty of staphylococcus epidermidis albus. All kinds of media were used and inoculations from the pustules as well as teased tissue were made. The cultures after 24 hours showed white colonies which were almost a pure growth of diplococci, which were very small and were stained by Gram.

Further study, by the planting of microörganisms on the various culture media, potato, gelatine, milk, boullion, etc., showed almost a pure culture of the small organism which arranged itself singly, in pairs and in small bunches. A few of the tubes contained a mixed culture. Several colonies corresponded to those found in the previous tubes. The other organism was staphylococcus pyogenes albus.

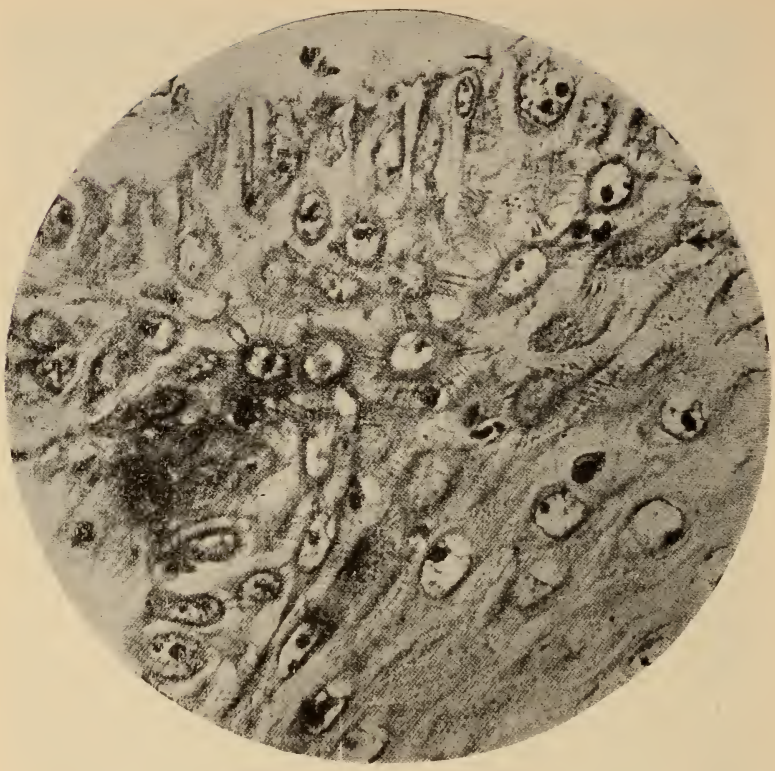

FIG. 3. Same séction more highly magnified, showing well-defined prickles. with granular cell remains in the meshes.

Histopathology.—Two tumors representing different periods in growth were removed for microscopical examination. These were placed in Zenker's fluid and alcohol, and stained by various stains, including those for bacteria.

Horny layer.—The horny layer was entirely removed or became moderately thickened. The surface contained much débris, consisting of blood corpuscles, shreds of horny epithelium, and, in portions not detached, large nucleated epithelial cells.

Stratum lucidum.—This was not discovered in the diseased skin. There were no cells to be found distinct from the stratum granulosum, although eleidin granules could be noted by means of the oil immersion.

Granular layer.—The granular layer was deepened and, in the more recent growth, increased by two or three layers; it was, however, much thinner in the older lesions. There were a number of leucocytes seen in this as well as in the horny layer.

Rete.—This layer was uniformly and excessively thickened, causing projections which dipped deeply into the cutis. Evidence of edema ap-

peared. The superficial cells showed vesicular nuclei, although occasionally shriveled nuclei could be seen. All the cells, even the superficial ones, possessed distinct prickles. Leucocytes were found between the cells of the superficial layer and in certain places had resulted in a formation suggestive of pustules.

Cutis.—The blood and lymph vessels were specially dilated, particularly under the elongated papillæ. There was a decided infiltration of leucocytes and a few plasma cells in the papillary layer of the corium. In the deeper layer they were limited to close relation with the blood vessels. The leucocytes were almost invariably lymphocytes. Polymorphonuclear leucocytes were present, but rarely proliferating connective-tissue cells. In the older tissue the changes were essentially the same, although many of the cells showed regressive alterations, the leucocytes in many instances having aggregated and formed pustules. No microörganisms were discovered.

We find in each the following lesions: First, the superficial miliary pustules from which a droplet of pus can be squeezed. These are surrounded with reddened bases varying in size. As the base increases, the pustules apparently disappear. Later the lesion is covered with scales and crusts. At the same time the base becomes elevated above the surface of the surrounding skin and assumes a more or less circular papillomatous vegetating appearance, which is seen on removal of the crusts. These vegetations arise either from the base of a single pustule or by the coalescence of several lesions. They show a peripheral extension and form a group of pustules; the more recent ones, upon removing their crusts, appear intact at the border of the growth. The largest reach an elevation of 1 inch. The etiological factors are not striking. The first question is whether the dermatitis vegetans is strictly and entirely the result of eczema. This seems hardly possible, because such a complication is rarely manifested. May it not be due to a circumscribed or a secondary infection? Careful inquiry was made regarding other members of the family but no such cutaneous malady was found to exist. We know that non-specific lesions of the skin may accompany other forms of secondary infection. The mode of development and the rapidity with which the lesions responded to antiseptic treatment suggest the possibility of some microörganism as the inceptive influence in this affection. In differentiating these cases from those more recently specified in medical literature, one would naturally think of blastomycetic dermatitis, especially when the microscopical appearance is taken into consideration. The benign hypertrophy and the small accumulations of leucocytes suggestive of miliary abscess formations are points in common with that disease. No blastomycetes were found in the cutis by Dr. Gilchrist.

UNUSUALLY HIGH DEATH-RATE.

Although fewer cases of typhoid fever and of smallpox are reported to the Philadelphia Bureau of Health for the week ended February 15, the total number of deaths was unusually large—namely, 602, as compared with 581 for the preceding week and 522 for the corresponding week of

the previous year, and with 503 for the corresponding week of two years earlier. A round hundred of deaths were due to pneumonia, while 64 resulted from pulmonary tuberculosis; 47 were due to nephritis, 38 to diseases of the heart, 28 due to typhoid fever and also to gastritis and enteritis, 23 to apoplexy (not including 10 due to paralysis), 19 to smallpox and also to old age, and 16 to diphtheria. Twenty-one deaths are attributed to "inflammation of the brain." The number of cases of typhoid fever for the week was 157, of smallpox 74, of diphtheria 671, and of scarlet fever 62.—*Medical Record.*

DIPHTHERIA; WITH SPECIAL REFERENCE TO THE SYMPTOMS AND TREATMENT.

Lawrence T. Royster (*Med. News*, March 1, 1902) says: Diphtheria is an acute, infectious and contagious disease, of which the most constant manifestation is the formation of a pseudomembranous deposit, usually on a mucous surface. There is also a toxemia accompanied by certain characteristic constitutional disturbances arising therefrom.

The etiology of diphtheria may be considered under two heads—predisposing and exciting. Under the first head, predisposing, may be placed anything which undermines the general health. Diphtheria frequently follows sore throat or exhausting diseases and conditions, being often a complication of convalescence from scarlet fever and measles. Formerly defective plumbing was considered a prominent predisposing factor. This is probably true, however, only in so far as it may cause a simple or more frequently a saprophytic angina which becomes a suitable culture-medium for the growth of the bacillus.

Naturally we find diphtheria more frequent, and in fact epidemic, in closely settled districts, but unlike most contagious diseases, it is by no means rare in outlying and suburban localities and is sometimes found among the inhabitants of the islands of the sea. The age of selection of the germ seems to be under the tenth year, though adults are by no means exempt.

Under the second head we may place the Klebs-Loeffler bacillus as the sole exciting cause. The period of incubation is variously stated at from one to seven days. Seven days is somewhat long; one to three days being about the usual period. Vomiting and convulsions, so common in the eruptive diseases, are rare, convulsions being very unusual. Even an initial chill is uncommon. There is sometimes a period of malaise, but the attention is usually called first to a difficulty in swallowing or to a pain at the angle of the jaw, or to an enlargement of the submaxillary or anterior cervical glands. The temperature ranges from 100 to 103° F., but more frequently remains nearer 100 than 103° F. The temperature is apt to be higher at first than at any other time of the disease (except in the event of complications), and as a rule, when the patient comes under notice the temperature is rarely over 101° F. The pulse, however, is usually very rapid from the first, showing a rapidity of absorption of toxins which is probably unequaled in any other disease. This disproportion of pulse and temperature forms one of the most valuable diagnostic features of the disease.

The most prominent local symptom, of course, is the presence of the pseudomembranous deposit, which is situated most frequently at the junction of the tonsils with the soft palate. In mild and simple cases the membrane remains in this situation, and may be so slight as to resemble strongly a follicular tonsillitis—so much so in fact that it may puzzle the most expert clinical diagnostician. The only safe method of diagnosis in such cases is the culture. Hence the importance of an early culture in all cases in which there can possibly be any doubt. In more severe cases the membrane extends to the velum, over the whole tonsil, to the posterior pharyngeal wall, nasopharynx, nares of larynx, through the lacrymal duct to the conjunctiva of the eye. The membrane may be primary in any of these situations or may be there only by extension. The most serious localities for the formation are the larynx, nose and eye, each of which calls for special local treatment. There is also a form of diphtheria which is characterized by a serosanguineous discharge from the nose.

He is fully aware that there is a great weight of opinion against the probability that this form is of a true diphtheritic nature. But in the light of experience with a large number of cases occurring during an epidemic, he was able to present the following evidences of its genuineness:

1. The Klebs-Loeffler bacillus (or the pseudo form or both) is always found in the discharge.

2. All the constitutional symptoms of true membranous diphtheria exist in this type.

3, It is capable of infecting others with the membranous form of the disease.

4. It is cured by antitoxin.

The odor of the breath of a patient suffering with a severe form of diphtheria is characteristic. and once smelt is never forgotten. The cervical adenitis, which is so common a symptom, is rarely seen when there is a pure infection from the Klebs-Loeffler bacillus, is almost invariably seen when there is mixed infection, which is generally the rule. The enlarged glands, however, rarely suppurate.

Authorities have endeavored to distinguish between the constitutional symptoms of the pure form and those of the mixed infection, but no distinction has been made which is of diagnostic value. The mixed infections, however, are much more severe and probably play an important part in the so called malignant cases from which arises that much dreaded condition, "sepsis.

The urine frequently contains albumin, but to a much less extent than is the case in other febrile conditions, especially the eruptive fevers. He certainly has not found it often enough to warrant it being classed as a symptom.

A pulse suddenly becoming slow and irregular indicates a rapidly failing heart. Also a steady rise in temperature, which cannot otherwise be accounted for (pneumonia, etc.), usually means the setting in of the "septic condition," and is an almost sure forerunner of death.

The severity of the constitutional symptoms is in direct proportion to the extent of the membrane, which may spread with exceeding rapidity, the system becoming rapidly overwhelmed by the poison until the patient

is sometimes beyond hope in 24 hours from the first appearance of the exudate. The degree of rapidity is fortunately rare.

The symptoms as a rule develop gradually, progressively showing marked prostration, a rapid and feeble pulse and usually stupor, but there may be extreme restlessness and at times even delirium. The temperature in these extreme cases is variable, ranging from normal to 105 or 106° F., sometimes in the worst cases being low and at other times high from the start. The malignant and septic cases are usually a mixed infection with the streptococcus. In this case it is not so common to find nephritis, which, however, in itself rarely causes death.

A fatal termination of a septic case is preceded by a rapidly-failing heart and extreme prostration, neither of which improves under stimulation, disturbed respiration (aside from croup cases) and consequent cyanosis. and vomiting and diarrhea. Death from diphtheria usually results from an overcoming of the system by the toxemia (asthenia), cardiac failure, directly due to the action of the poison on the muscle (parenchymatous degeneration) and nerves (paralysis) of the heart, and from asphyxia as in croup. Of course any of the numerous complications may cause death.

The development of *membranous* croup is usually gradual, but unlike the spasmodic variety, steadily increases in severity. For the first day we may have little more than gradually increasing hoarseness, the ratio between pulse and temperature not being so constant as in the other forms of the disease; but during the following 24 hours the breathing becomes forced, rapid and harsh, the little patient bringing into use all the accessory muscles of respiration, the suprasternal, supraclavicular, epigastric and intercostal regions becoming depressed with each respiration; the patient becomes more and more restless until the efforts and struggles to obtain air are distressing to witness. The lips and fingers become blue the child rapidly sinks into a half conscious condition, the violent efforts to breathe cease, the color becomes ashy, the pulse weaker and weaker, and finally death ensues. In the more fortunate cases under early treatment by antitoxin, these symptoms, instead of reaching the stage of unconsciousness, gradually subside in reverse order to the above. When antitoxin is not administered soon enough, relief has to be given through the use of the laryngeal tube.

By far the most frequent complication of diphtheria is bronchopneumonia, occurring in a large percentage of croup cases and especially in tracheotomy cases, thus constituting one of the chief objections to that operation. Otitis is not so frequent as in scarlet fever and measles. Pericarditis is fairly common. One of the most alarming complications and one which is sometimes very hard to control is nasal hemorrhage. Vomiting and diarrhea may be troublesome. The paralyses are the most constant of the sequelæ. The most frequent of these is the paralysis of the soft palate, causing regurgitation of food. The pharyngeal muscles are also affected, and peripheral neuritis is not at all rare in the serious cases.

Treatment.—The treatment of diphtheria may be considered under two heads, local and general.

Nothing remains today of local treatment save irrigation systematic-

ally performed with hot salt solution. The object of this is two-fold: First, to remove the loose pieces of detached membrane as it exfoliates in the process of repair; second, the heat of the irrigating fluid greatly alleviates the accompanying inflammation of the pharynx and reduces the consequent swelling.

In order to irrigate, the child should be wrapped from the shoulder down in a sheet which is pinned closely so as to render the patient entirely helpless. The child is then placed on its back on a table with the head turned to one side, a rubber sheet is placed around the shoulders and a Kelly pad beneath the head. The left hand of the operator is placed on the child's head in order to keep it still and the long nozzle of a fountain syringe is introduced into the mouth (along the inner surface of the jaw if necessary to open the mouth by force) and the irrigation performed intermittently. This is done in order to give the patient an opportunity to spit out the water, thus avoiding choking. The only objection that has been raised to irrigation is that it sometimes causes middle ear disease. But of this there is no proof. In nasal cases the same method is used except that we employ the short, blunt tip of the syringe. When the membrane is so large as to plug the nose we have recourse to the hand-bulb syringe. The temperature of the water used should be from 110 to 130° F., depending on the local pain and swelling. In urgent cases irrigation may be employed every hour for some time, but usually three to four times a day is sufficient.

Two important factors are necessary to the successful treatment of diphtheria—an early diagnosis and a sufficiently large dose of antitoxin. The initial dose of antitoxin should rarely be less than 2,000 units, and in moderate cases, if there be not marked improvement in 24 hours, this dose may be repeated without injury. In more severe cases the initial dose is from 3,000 units in children to 4,000 or 5,000 in adults.

Usually the improvement begins to be manifest within 36 hours after the administration of the first dose. The first indication of improvement is shown in the arrest of a spreading membrane and almost at once the edges of the exudate begin to exfoliate, the constitutional symptoms subside, the temperature, if high, drops and the patient's condition is generally improved.

Stimulation, next to antitoxin, is the most important of the treatment, Whiskey is the best agent, certainly in the earlier stages of the disease; later, and particularly when there are paralyses, strychnine is of value. A rapid and weak, or an intermittent pulse calls for immediate action; absolute rest, secured if necessary by morphine and active stimulation, are required. Forced nutrition may be necessary, as the patient frequently refuses all food.

Otitis media calls for early incision of the drum, but both this and the eye infection call for the aid of a specialist.

The color and pulse are the two best indications of the necessity for the use of the tubes. When other measures have been tried and have failed to give relief to the breathing and the pulse becomes rapid and weak, intubation should be performed immediately. If we find a patient resting apparently, but with a weak pulse, we judge that the efforts at breathing have been severe and prolonged and that the apparent rest is

but exhaustion. A continued cyanosis without an indication of improvement calls for immediate relief.

SUICIDE IN ADOLESCENCE.

When a youth in the heyday of life commits suicide, nine men out of ten will hint at overstrain and find an explanation for the unnatural act in the complex conditions of his environment. And if that youth happens to have been an ambitious collegian, standing well in his classes, one may easily do great injustice to those who are responsible for the burden under which the individual has been assumed to succumb. University studies and university conditions generally, it should be remembered, are prescribed for the average undergraduate, and the undergraduate who takes his own life is not an average man.

When the instinct of self-preservation is atrophied or paralyzed to the extent of making suicide possible, there is always a predisposing as an exciting cause, and until we can penetrate into the minds of our fellow men and possess ourselves of these elements, structural and functional, it will be futile to speculate as to what may have been the conspiracy of conditions that determined to act in a given case. The philosophy of suicide is, and in its nature must always be, an unknown and impenetrable territory. We know well enough that the weak body, the body of little inhibitory power, is often the tenement of the gifted mind and that a mind thus tenated is easily disturbed as to the harmony of its mental and moral faculties. We have all known young people who intensify every impression into one of absolute pain or exquisite pleasure—who know no middle ground. A child has been known to commit suicide because of the death of a favorite dog. Indeed, there seems to be no circumstance too trivial to operate as a cause in persons who are predisposed by inhertance

> "To die—to sleep—and by a little sleep to say
> We end the thousand heartaches and the natural
> Shocks that flesh is heir to."

In neurasthenia, a disease so wofully common in this country, enfeeblement of will and impulsiveness go hand in hand, thus permitting any idea to become fixed in the mind and be the origin of an obession. It is a mistake to assume the blight of an overwhelming grief to account for the act where there is inherent defect and constitutional indifference to life. But the period of adolescence, that from 18 to 25 years of age, is a particularly dangerous one in young men of unstable equilibrium. The sexual egoism is a conspicuous factor in their psychology, and their vague longings and general nervous instability make them easy victims to their morbid emotionalism. And if at this time the youth is striving for marks, either in the school or elsewhere, he is quite apt to succumb under the strain. Here at least there is opportunity for the teacher to give warning, as philosopher and friend, to him who does not appreciate that mere mark-getting does not connote intellectual eminence. Moreover, the youth who thus sets his heart upon marks is quite likely to strive for

them in like fashion later in life, and, under the withering influence of such faise standard of merit. not to care particularly *how* he gets them. For this and kindred reasons it has seemed to the writer that all large colleges would do well to have as an essential part of their polity a department through which young men might be watched, guided and aided from the point of view of personal, and especially mental, hygiene.

All experienced medical men know something of the anguish of the soul that is often suffered by students during the stressful period of adolescence, and it will be readily understood what a real help it would be if they might go, as to a father confessor, to a mentor, preferably a physician, of large experience, of generous nature and with a broad outlook upon life, and have gloomy apprehensions removed, fears set at naught, faulty perspective corrected and much else done for them that might make for their general welfare,—Editorial in *Providence Med. Jour.*

THE MALNUTRITION OF TUBERCULOSIS.

Floyd M. Crandall (*Arch. of Ped.*, January, 1902) closes an article on this subject as follows:

1. Wasting, anemia, and other evidences of malnutrition are constant accompaniments of tuberculosis in children.

2. These symptoms may occur in infants long before local disease can be detected, and occasionally no local signs whatever are manifest before death.

3. In infants, tuberculosis shows a special tendency to be disseminated or to conceal itself in the deep tissues, as the lymph nodes. The disease may then run a course identical with simple marasmus.

4. In some cases a period of anemia and wasting is followed by a stage of irregular fever, after which local lesions appear, usually in the lungs.

5. In other cases tuberculosis in children begins with well-marked local manifestations, particularly pneumonia. In these, evidences of malnutrition appear promptly and are usually progressive.

The anemia of tuberculosis, whether it appears before or after the occurrence of other symptoms, is a usually simple anemia and presents nothing characteristic.

6. A diagnosis of tuberculosis cannot be made alone from the character of the anemia or the malnutrition However, persistent and increasing malnutrition in a child without discoverable cause is always suggestive of tuberculosis.

Anemia in adolescents should receive prompt and active attention, for it vastly increases the danger of tubercular invasion, which is particularly common at that period of life.

THE DISINFECTION OF SLEEPING CARS.

Through carelessness or inability to prevent it, tuberculous passengers foul the blankets on their beds and the curtains of their berths with spu-

tum. R. J. Wilson, instructor in bacteriology, New York University, has tried some experiments in sleeping-car disinfection with a view, first, to get good disinfection, and second, to do it so that the disinfected car is made fit for service in the shortest possible time. After describing trials of different quantities of 40 per cent. formalin and formaldehyde gas, generated directly from methyl-alcohol by passing it over red-hot platinum he says: "In the fifth experiment formaldehyde gas was generated from methyl-alcohol direct, 6 litres of alcohol were used and the time of exposure was 5 hours. There was superficial disinfection without penetration. There was a strong odor of methyl-alcohol in the car for a few hours after disinfection, but not enough to keep it out of service." In reference to the comparative merits of the different forms of disinfection by formaldehyde he says: "The persistence of the formalin odor, after disinfection with formaldehyde gas generated from 40 per cent. formalin or paraform, renders these undesirable for car disinfection, while the rapid dissipation of the odor, after the use of methyl-alcohol particularly, recommends it to favor for surface disinfection." As to the penetrating power of any form of formaldehyde disinfection his conclusion is: "Penetration cannot be counted on, so that all portable articles in the car, especially the blankets, should be disinfected in a chamber where complete penetration is assured."—Editorial note in *Canadian Journal of Medicine and Surgery.*

PEDIATRICS

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EDITORIAL COMMENTS

Metchnikoff on Immunity

The publishing house of Masson et Cie (Paris) have just issued the French edition of Prof. E. Metchnikoff's work on Immunity. The subject of immunity handled by a scientist like Professor Metchnikoff certainly makes a valuable addition to medical knowledge. A study of this book will be no disappointment to the savant, the scholar, or the practitioner. American medicine is acquainted with Professor Metchnikoff as the expounder of the theory of phagocytosis and the exponent of many new and now well established ideas upon inflammation. In this recent publication the author, instead of swerving from his original theory, adds many interesting facts which all point to a confirmation of his primary conceptions. Leaving aside the rôle of the phagocytes and the part they play in the destruction of microbes and cellular elements, he plunges into the intricate problem of the relations these same phagocytes bear towards the toxins. In this latter investigation great emphasis is laid upon the fact that when an animal has been vaccinated with a microbe the animal is in no wise immune against the toxin secreted by the same microbe.—Ehrlich's "side-chain" theory, which has been offered as an explanation of the intimate mechanism of antitoxin formation, is fully set forth and in a measure accepted. While considering the

genesis of the antitoxin a direct issue is taken with Ehrlich, who claims that each toxin has a special affinity for some particular tissue of our body, and the organs that are made up of this sort of tissue are necessarily the seat of secretion of the corresponding antitoxin. In substantiation of this theory the example is cited (by Ehrlich) of the affinity of tetanus toxin for nerve tissue. It is well known that tetanus toxin can be completely deprived of all toxicity outside of the body by mixing it with a quantity of brain substance; and furthermore, when the toxin of tetanus is injected into an animal organism it has a predilection for the nervous system. In this instance and according to the hypothesis tetanic antitoxin is secreted by the brain, spinal cord and other nerve tissue.—On the other hand, Metchnikoff observes that when an animal is injected with the spermatozoids of another animal of a different species there is generated in the organism of the injected animal a toxin which will kill the spermatozoids of the animal that furnishes the sperm; this is a spermato-toxin. Now, in so much as the spermatozoids are the elements attacked by this toxin, its antitoxin should not be generated in an animal that has been been emasculated. The results from experiments, however, prove that the antitoxin is formed as well in castrated animals as in those that retain their testicles.—The details and conclusions of Bordet's experiments upon hemolytic and bactericidal reactions are concisely recorded; also the bearing they have upon immunity. Two results have come out of these experiments that are now being applied in practice—the detection of human blood and the identification of a microbe with the disease it causes.—Lastly we cannot fail to note the satisfaction with which Professor Metchnikoff gives the results of Gengou's classical experiments, that so completely overthrew the humoral theory and justly gave the bactericidal property of blood serum to the phagocytes. J. de L.

A New Step in the Warfare Against Diphtheria in the Tenements

The following selection from a recent Circular of Instruction (dated March 17, 1902) issued by the New York Department of Health to the Medical Corps of the Department is of general interest:

"A special Corps of Inspectors has been organized by this Department for the free administration of diphtheria antitoxin. Said inspectors will not only inject antitoxin in cases of diphtheria but will also immunize other members of the family. In those cases in tenement houses where isolation of the patient has not been or cannot be rigidly enforced, the inspectors will, if possible, immunize all others in the house. In this way the Department is confident of materially lessening the spread of the disease. All diagnosticians, medical inspectors, medical school inspectors and vaccinators are therefore instructed to promptly report to the office of the division of bacteriology (telephone 1204 Columbus) instances under observation where isolation of diphtheria is not being properly carried out, or where individuals exposed to infection have not been immunized against the disease. An antitoxin inspector will then visit the premises and perform immunization when necessary."

To carry the efficiency of antitoxin as a rational cure of the disease to the highest possible point the Department has also arranged, from April 1st, to supply all the dispensaries in crowded quarters of the city with a sufficient amount of antitoxin to inject at once all *suspected cases*. Such cases are now injected with 2,000 to 3,000 units *before leaving the dispensary*, and before a culture has been made. They are then sent home at once and reported to the Department. The regular inspector, calling the next morning, continues the work as heretofore. This procedure does no harm in any case whatever, and in the true cases secures antitoxin treatment from 24 to 36 hours sooner than has ever been practicable before among those unfortunate poor who are unable to command the services of a private physician. B.

The Ohio State Pediatric, Society which holds its next annual meeting on May 27–28 at Toledo, Ohio, announces that beside its extensive and excellent program of papers which will be presented at the regular sessions, a special address will be given at the evening session on May 27th by Dr. F. X. Dercum, of Philadelphia, Pa., on the subject, "Mental Disorders of Children."

ORIGINAL ARTICLES

THE ETIOLOGY OF HODGKIN'S DISEASE.*

By John M. Dodson, M.D.,
Chicago, Ill.

THE etiology of Hodgkin's disease is still an algebraic x to the clinician and pathologist. The disease is of sufficient frequency to render it of importance, and our almost entire helplessness in the matter of its treatment makes the solution of the cause, as offering the only sure therapeutic hope, a matter of great interest. The disease is of interest to the pediatrist because a considerable proportion of the cases occur in children, and it is with difficulty distinguished in many cases from leukemia, on the one hand, and syphilis, tuberculosis, or sarcoma of the lymphatics, on the other,—all diseases of more or less frequent occurrence in children.

History.—In 1669 Malphighi described a general enlargement of the lymphatic glands associated with nodules in the spleen, but there is no indication that he looked upon this association as a distinct symptom-complex. Craigie, in 1828, distinguished the glandular enlargements from those of cancer and scrofula, but it remained for Hodgkin in 1832 to give a clear and definite account of these peculiar enlargements definitely associated with nodules in the spleen, and to recognize these changes as constituting a distinct morbid condition. Velpeau, Samuel Wilks, Bonfils, Billroth, Wunderlich, Pavy, Cressy, Virchow, Cornil, Trousseau, Miller, Murchison, Garner and others successively described cases and pointed out more and more clearly the peculiar features; Bonfils first recognizing the absence of leukemia. In 1892 Dreschfeld gave an exhaustive account of the disease and especially of the blood findings. In recent years the literature of the disease has grown quite extensive.

The salient features of these cases may be briefly set forth. Quite the most conspicuous feature is the enlargement of the

* Read before the Chicago Pediatric Society, December 5, 1901.

lymphatic glands, usually affecting the superficial groups first and later the deeper ones; sometimes a single group of glands is alone involved, at least for many months, while again, many glands, indeed, in cases almost every gland in the body may become implicated. The order of involvement is usually as follows: First, cervical, then axillary, inguinal, retroperitoneal, bronchial, mediastinal and mesenteric groups. The size attained by the individual glands varies from that of a bean to as large as a cocoanut. Uniformly discrete at first, the glands may later become adherent from periadenitis or extension of the growths, and likewise the skin, at first freely movable over the growths, may later become adherent. In consistence the glands are at first soft and become hard and resistant in proportion to the rapidity of the growth; hard and soft masses may be found side by side in the same patient. The glands are very seldom tender or painful unless from pressure on surrounding structures. The rate of growth varies greatly, and in the same patient may be rapid at one time and slow or even retrogressive at another. In the neck one side is usually first affected and continues to exceed the other in size. Pressure symptoms of various sorts may be occasioned by the encroachment of the gland on the neighboring structures. On section the color is grayish-white with red spots corresponding to the dilated vessels which have been cut across or where hemorrhages have taken place; rarely caseation is found.

Microscopically the lymphocytes are greatly increased in numbers and in the early stage of the enlargement this constitutes the only change, the meshes of both cortex and medulla being filled with them. In the firmer glands the fibrous stroma is increased as well as the lymphocytes, and both septa and fibres of the medullary network are thickened. In the very late stages only a mass of fibrous tissue may remain in place of the true gland structure.

In a large percentage of cases (78 per cent.) the spleen is involved, the enlargement, however, never reaching the enormous proportions seen in true leukemia. It may be due to simple hypertrophy or to the presence of lymphomata in the substance of the organ originating in the Malpighian corpuscles and varying in size from that of a pea to that of a crabapple. Microscopically the fibrous trabeculæ are found increased; infarctions, red, pink or cream-colored (depending on their age), are seen, and the lymphoid growths are found to resemble the

enlarged glands. If these are large they compress the splenic pulp which becomes atrophied and contains cells which have undergone fatty degeneration and also pigment granules.

Adenoid growths may occur anywhere along the alimentary tract with resulting thickening of the mucous membrane in the pharynx, esophagus, stomach, or intestines, and occasionally ulceration of the same. The liver is usually found to be the seat of numerous small lymphoid growths scattered throughout its substance, both between and within the lobules, and these may cause enlargement of the liver, or this latter may be due in part to capillary congestion. Partial obstruction may lead to ascites.

Adenoid growths may also occur in the lungs, heart, kidneys, thyroid, or adrenal glands, the skin, but very rarely in the nervous system.

The changes of the blood are of especial interest because of the resemblance of Hodgkin's disease in many respects to leukemia, a fact sufficiently indicated by the name pseudoleukemia, which is used more frequently perhaps than any other excepting the term Hodgkin's disease. There may or may not be a considerable anemia, the red corpuscles being present in only 50 or 60 per cent. and in extreme cases 25 per cent. of the normal number, the hemoglobin being correspondingly diminished. There is usually no leucocytosis and never any pronounced degree, nor does the differential count show a preponderance of any special type of cells. Ehrlich has thought that the esinophiles are usually and significantly increased in number, but this observation is denied by Dreschfeld and Kanthack. The anemia if pronounced may give rise to weakness, edema of the feet and other parts, and hemorrhage from the mucous membrane, in the subcutaneous tissue, or even in the retina.

The heart's action may be feeble if there be fatty degeneration or anemia, quickened with fever, or made irregular if there be pressure on the vagus. As a result of the lymphatic changes in the alimentary tract we may have enlarged tonsils, dysphagia, deafness, vomiting and dyspepsia, diarrhea or constipation and obstructive jaundice (rare). Dyspnea, bronchitis, crepitations or pleural effusions may occur. In a few cases delirium and coma have been noted; in one, edema of the brain and irregularity of the pupil. Pain in arms or legs, and paraplegia may be caused by pressure of the glands upon the

cervical sympathetic, brachial, or lumbar plexuses, or upon the cord respectively.

Fever is present in about two-thirds of the cases (Garner), more commonly in the acute cases and may be continuous or present a wide diurnal variation, or may be present at intervals of some days. There is seldom marked albuminuria or other evidence of kidney involvement; amenorrhea is common. Sometimes the skin is pale—in a few cases it has been bronzed; and there may be subcutaneous edema or profuse perspiration.

Diverse views have been entertained as to the etiology of the disease and its relation to other processes. Cabot, in the recent American System of Pathology, well expresses our lack of definite knowledge on these points, as follows:

"Our ignorance of its etiology is of the same degree as its pathology is identical with that of chronic leukemia, and its blood condition wonderful only in being so normal. Two points especially deserve discussion: (1) Is it a separate disease? (2) Why is the blood normal (the organ changes being identical with those of leukemia)?

"There is little doubt but that many cases considered as Hodgkin's disease have been in reality cases of tuberculosis or syphilitic adenitis. Only the most careful study can at times distinguish these diseases from Hodgkin's disease. The diagnosis can therefore never be made with certainty during life, and it has been asserted by various writers that what we call Hodgkin's disease is really a congery of cases, some tuberculous, some syphilitic, some malignant disease, some early leukemia and some chronic malaria. The distinction between this disease and the various forms of sarcoma of the lymphatic glands cannot be made either during life or by the microscope, as there are no reliable differences in cell structure. This haziness is mirrowed in the various names which have been given to the affection—lymphadenoma, lymphadenosis, lymphosarcoma, lymphoma, malignant lymphoma, lymphatic cachexia, adenie, anemia lymphatica, pseudoleukemia, splenic anemia, etc., etc.

"On the whole we must regard the question of the nature of the disease as wholly unsettled, but there is no reason for supposing that it has any close relationship to syphilis or tuberculosis.

"In leukemia something occurs which sets free in the blood

current the masses of leucocytes produced in the organs. What is this something? Troje assumes a riddling of the septa which normally divide the germ centers from the lymph channels and from the narrow veins. Benda adds to this hypothesis the fact that he has observed in leukemic cases extensive changes in the vessels. Both in the primary growths and in the metastatic nodules he finds the vessel walls invaded with lymphoid tissue so that the leucocytes can easily burst through into the vessels. Frequently the elastic layer and the intima up to the very endothelium are riddled with lymphoid growths, and in the larger veins he finds lymphomas projecting into the lumen of the vessel and covered only by endothelium. In Taylor's cases the endothelium was ruptured. For some reason vessels invaded by lymphomas do not become the seat of thrombosis, perhaps because the cells of lymphoma are such near relatives of those of the blood and excite no reactive hostility.

"Microscopically we find in all advanced cases, first, a great increase of stroma in the lymphadenoid organs, then the hyperplasia of lymphoid cells, as described in leukemia."

Stengel inclines to the view adopted by the leading French writers, and says: "Lymphadenoma is variably malignant. In a small proportion of the cases the malignancy is of local character, that is, the growth tends to invade neighboring parts. In most instances there is rather a tendency to general involvement of the lymphatic system with metastatic deposits in various organs. To cases of this kind the term Hodgkin's disease, pseudoleukemia and adenie have been given. These cases present themselves in the form of a progressive anemia (lymphatic anemia, Wilks), often with irregularly relapsing fever, and especially with lymphadenomatous tumors in the superficial or deep lymphatic groups (axillary, cervical, inguinal, mediastinal and abdominal). The disease progresses more or less rapidly and terminates in death from cachexia and exhaustion in from one to three years. The whole course of the disease is suggestive of an infectious process. The relation of cases like the above and leukemia is certainly very close. The glandular tumors and the secondary changes in the organs are the same excepting that the lymphatic glands are more prominently involved in ordinary lymphadenoma. The only striking difference is found in the blood. In leukemia there is marked and characteristic leucocytosis; in the other condition this is absent. Many cases have been observed, however, in which

Hodgkin's disease has become leukemic, and some authors do not hesitate to speak of the two diseases as identical and representing merely two stages of a common affection—leukemia and a leuukemic lymphadenoma. This view seems to be well grounded."

Lazarus-Barlow entertains a somewhat similar view, as follows:

"There may be considerable difficulty from microscopic examination in differentiating pseudoleukemia from leukemia of the lymphatic type. Moreover, there is the further difficulty that it is uncertain whether under the same name one and the same pathological process or more than one is included.

"There is growing up a belief that lymphadenoma may ultimately be shown to depend on a microörganism and therefore be an infective disease, but though bacteria have been described in such cases by several authors, the evidence they offer is inconclusive at present."

Shattuck & Cabot (Loomis's System).—"The etiology is unknown; it is so difficult to distinguish certain cases of the disease from the glandular enlargements due to tuberculosis or syphilis that some writers have supposed all cases to be of this nature, but the evidence against this view is strong. An infective course is suggested by certain features of the disease but the evidence is insufficient; some cases are said to develop into leukemia."

Ander's Practice of Medicine.—"The disease involved seems to belong to the group of infectious granulomata, but the infectious agent is not known. Flexner thinks that certain protoplasmic foreign bodies (found in the larger nodules in two cases) may possibly have a causal relation to the disease.

"In undoubted cases of Hodgkin's disease the lymphatic glands frequently harbor tubercle bacilli; hence it has been thought that the latter exercise a distinctive causative influence. It must be remembered, however, that some of these may be examples of secondary accidental infection; others of primary diffuse lymphatic tuberculosis, indistinguishable from or mistaken for Hodgkin's disease."

At the meeting of the Association of American Physicians last spring, Professor Welch stated that there is a disposition on the part of many physicians to regard Hodgkin's disease as frequently, if not always, of tubercular origin, and in a recent monograph Dr. Crowder, of this city, had expressed a similar

view. I quote from his article: "During the last few years there has been a growing tendency among writers and observers to look upon Hodgkin's disease as of infectious origin. The staphylococcus and streptococcus, the pneumococcus and various less well known organisms have been found in the glands, sometimes before death and sometimes after, and often investigators have not hesitated to attribute to this or that organism the causative rôle.

"During the last ten or twelve years cases have been described as pseudoleukemia, agreeing clinically and showing after death lesions pointing to that disease, which careful investigation has proved to be tuberculous, thus establishing a form of tuberculous adenitis so closely simulating leukemia that the two conditions are often indistinguishable even at post mortem examinations. Such cases have been reported by Weisshaupt, Troje, Bretano and Tangl, Cordua, Waetzoldt, Dietrich, Courmont, Tixier and Bonnet, Sternberg and others."

It is to be said in this connection, however, as Crowder himself notes, that the presence of tubercle bacilli in morbid tissues by no means warrants the conclusion that they are the cause of all the anatomical and clinical phenomena present; and furthermore, even when distinct tubercular lesions are found in connection with Hodgkin's disease, it must not be too hastily concluded that the tubercular infection was not secondary.

As a contribution to the discussion of the tubercular origin of Hodgkin's disease, the following case is reported.

Theodore Tessman, aged 3½ years, was brought to Rush Medical College, clinic for diseases of children, on April 16, 1901, with the following history: Parents living and healthy, as were also her brothers and sisters, with no history of tuberculosis, syphilis, or other chronic disease. The patient, a sturdy boy of about normal height and weight, was said by the mother never to have had a serious illness. About three months previously she had noticed a swelling on the right side of the neck which had increased rapidly, extending over to the left side as well until he presented the appearance to be described. There had been no complaint of pain; no loss of appetite; no fever, emaciation or deterioration of general health.

On examination the boy was found to be well nourished, of fairly good color and presenting no abnormality excepting the great enlargement of the neck—most marked on the right

side. Palpation discovered a general enlargement of all of the superficial glands of the neck, varying in size from that of a large filbert to a hen's egg. The skin was movable over the glands and they were movable upon each other. One or two of the enlargements were moderately hard, but most of them distinctly soft and semielastic, the largest gland, situated behind and below the angle of the jaw on the right side, suggesting a feeling of fluctuation. Subsequent attempted aspirations of this mass demonstrated the absence of fluid. The glands were not in the least tender, even on firm pressure nor was there any evidence of inflammatory process about them. There was no indication of pressure on the vessels, nerves, or other structures of the neck; no enlargement of the axillary, inguinal, or abdominal glands could be detected; the spleen was not palpable; temperature 99°, pulse 100. A diagnosis of lymphadenitis was made, probably of tubercular origin, though the possibility of Hodgkin's disease was noted. One week later an examination of the blood by Dr. Stevenson discovered a condition of slight anemia,—erythrocytes 4,200,000, hemoglobin 65 per cent., leucocytes 11,000 and differential count about 40 per cent. of lymphocytes, an amount not unusual in normal children during digestion. There was at no time pronounced leucocytosis. About May 10th he was admitted to the Presbyterian Hospital, and after the temperature range had been carefully noted for three days and found to be normal, 1 mg. of tuberculin was injected; this was followed by no reaction; three days later 3 mg. were injected and this was followed only by a slight transient rise in temperature lasting a few hours. It was argued that if the process was tubercular that with so extensive an involvement of the cervical glands 3 mg. of tuberculin should produce a decided reaction and the failure of this to occur spoke decidedly against the diagnosis of tuberculosis. Professor Fenger was asked te see the case and suggested the removal of one of the glands for microscopic examination, which operation he accordingly performed a week later. The small gland removed presented the typical appearance of the glands as seen in Hodgkin's disease, but careful microscopic examination in the pathological laboratory of Rush Medical College failed to show any of the usual appearances of a tubercular process and carefully stained sections showed no bacilli. It is much to be regretted that inoculation experiments were not undertaken, as it is well known that glands involved in a

tubercular process frequently fail to present the appearances of tuberculosis in other structures and the failure to find tubercle bacilli in microscopic examination cannot be taken as positive evidence of their absence. Even inoculation experiments, however, may not always be successful, for in two attempts on guinea pigs, detailed by Crowder in the paper above quoted, tissue which had been demonstrated to contain tubercle bacilli failed to produce tubercular lesions when introduced into the peritoneal cavity. It should be stated, however, that portions of tissue of some size were introduced without previously crushing or macerating them.

The failure of the tuberculin tests and the result of the microscopic examination of the gland removed seemed to warrant the exclusion of the tuberculosis and the case was considered to be one of Hodgkin's disease. The patient was placed on arsenic (Fowler's solution) in increasing doses, and at his last appearance at the clinic (July 5th) there was a noticeable diminution in the size of the glands. Since that time the patient has not returned to the clinic and careful inquiry at the former address of the parents had failed to discover his whereabouts.

It may be objected in this case that the diagnosis of a chronic lymphadenitis cannot be excluded, but it seems to me that the apparent absence of any antecedent affection of the throat, of pain and tenderness in the glands, of periadenitis, or of any tendency to suppuration, and finally the characteristic appearance of the gland removed for examination, speak strongly against such an opinion. This case seems, therefore, to have been one or Hodgkin's disease, in which the failure of tuberculin to produce a reaction and the absence of tubercular changes and of tubercle bacilli in one of the glands removed for the purpose of examination, proved the case to have been not of tubercular origin.

That Hodgkin's disease is of infectious origin is extremely probable, but the infectious agent is as yet unknown to us, though doubtless cases of tubercular and syphilitic disease of the lymphatics may simulate it closely and may have been mistaken therefor. In cases of doubt as to the tubercular character of the disease tuberculin should be carefully and thoroughly tried, and this failing, one of the glands or a portion of one should be removed, carefully examined for the presence of tubercular lesions and of bacilli and then emulsified with

sterile water and inoculated into guinea pigs. As Dr. Crowder has said, beyond this crucial test we are at present unable to go.

DISCUSSION.

Dr. Walker.—Cases of adenitis not generally specified as being of tubercular origin or any special kind are extremely obscure and the etiology is certainly not well understood by one who has seen a few cases only. I have a case now which I think it interesting to report. A child, three years of age, well nourished, of good hygienic surroundings,—everything of the best in the way of nourishment,—a child who has no family history of tuberculosis, has never had swelling of the glands, started in seven weeks ago with an acute adenitis on the left side of the neck, with fever from 102 to 104° F., irregular in character and lasting a week or so; glands swelling more and more, very hard. After about ten days the glands on the right side were involved, and with a fresh rise of temperature and fresh infection. The throat findings were absolutely negative; the glands on the right side of the neck were hard and all isolated and could be separately palpated; in another few days the submaxillary on the left side became involved and then on the right side. The glands now are practically in the same condition as they were when the disease first developed; no fever; the blood findings absolutely normal except slight anemia. The conditions are normal and yet I would hesitate to call it Hodgkin's disease. I think it is acute adenitis which has passed over into the chronic state and I believe that the glands will gradually lessen in size and become normal; no other glands are enlarged. Two other physicians have seen this case and Hodgkin's disease was not touched upon. There is no doubt that such a case is extremely obscure. I have no way of getting at any cause for this condition in a well nourished child who has had no previous history. As to the connection between tuberculosis and Hodgkin's disease I am very much inclined to think that it simply is a coincident condition.

Dr. Christopher.—How large are the glands now?

Dr. Walker.—The submaxillaries are as large as a small hen's egg; the cervical as large as a marble.

Dr. Christopher.—Are they increasing?

Dr. Walker.—Now they are not; I have not seen the child for a week; I only see it occasionally now.

Dr. Christopher.—Are they decreasing in size?

Dr. Walker.—Yes, a slight decrease; the glands decrease in size and there seems to be a decided improvement and then there is a sudden increase.

Dr. Christopher.—Only the cervical glands involved?

Dr. Walker.—No; the submaxillaries, too.

Dr. Christopher.—No other portion?

Dr. Walker.—No; no other portion. Now, I would hesitate to call that Hodgkin's disease and would like to ask the opinion of the society.

Dr. Christopher.—I do not believe that Dr. Walker's case is Hodgkin's disease, and I do not see how it could be suspected.

Dr. Dodson.—The recent writers have insisted that cases in which only the cervical glands are involved should not be called Hodgkin's disease. I question the right to dispute the teachings of the man who first defined the disease, who speaks particularly of those cases in which only one set of glands are involved. When we can show that these affections are local then it will do to exclude it. Most of the features of Hodgkin's disease may be absent in more than 25 per cent. of the cases. But there seems to me, as Dr. Christopher has said, little ground for calling Dr. Walker's case Hodgkin's disease, because the disease started in a very different way. It had all appearances of acute adenitis. The case which I have described began with a gradual increase of glands, without any evidence of increase of temperature. They took three or four months to attain any considerable size and had all appearances of my understanding of Hodgkin's disease.

The main point I wish to emphasize, however, is to differentiate between Hodgkin's disease and other forms of lymphadenitis. To clear up the doubt we should make use of the means at our hands;—repeated and increasing doses of tuberculin should be administered and where it is possible portions of the gland should be removed and subjected to microscopical scrutiny.

A Congress of Russian Surgeons.

The second meeting of the Congress of Russian Surgeons was held at Moscow in the early part of January, under the presidency of Prof. W. Rasumowski, of Kasan. The congress was attended by about 200 members.—*Brit. M. J.*

THE ADVENT OF SELF-CONSCIOUSNESS AND ITS RELATION TO THE CRIME OF ABORTION.

J. Allen Gilbert, PhD., M.D.,
Portland, Oregon.

At what time in the development of the child does self-conciousness present itself? To ask what it is and how it came to be, merely throws one back upon his own experience, for an attempt at explanation or definition involves of necessity the term to be defined, viz., knowledge. Self-consciousness, therefore cannot be defined or explained. Existence is inexplicable and needs no explanation. It is, however, our privilege to follow the changes in the development of consciousness and to note the changes taking place in the physical organism by which we interpret the psychic aspect so inaccessible to methods purely physical.

Past experience is a matter of memory, and data which occurred previous to the advent of consciousness must be considered as having no immediate counterpart in consciousness. These data, so far as conscious life is concerned, are prehistoric, inasmuch as they in no way connect themselves with that stream of consciousness which exists at the present time. Therefore that conscious life which we look upon as an entity reaches back to the point where memory still holds rule and no farther. Present consciousness may be looked upon as a resultant of past experience, or as present experience modified by the preceding process. When did that process begin? At the time when the child could say of himself "I am." This is extremely indefinite, varying by years in different individuals. As a rule, however, we can recall incidents in our experience as far back as the second or third year after birth. Is there "spirituality" in the child previous to this time? So far as being a self-conscious entity is concerned the child began its existence at that time, but the value, and I dare say, the sacredness of the human organism is not affected in the least whether it be one day, one decade, or one century old, except from the standpoint of relative development and value. No proof exists as to whence we came or whither we go, nor does

it matter, inasmuch as existence and responsibility are things of the present.

But when shall we say that individual self-consciousness begins? At conception, at viability, at birth, or when advanced months or years into independent existence? The last would seem to be the only defensible tenet, for only that is "I" which formulates itself, as it were, into a unitary consciousness which one calls himself. The beginnings of this unit were, no doubt, crude and perhaps intermittent in their manifestations; but even what we call fully developed consciousness partakes of the same characteristics. Non-continuity in space and time is not disproof of unitary existence. On the contrary, such is daily existence. Who has not at some time fallen in a swoon, been rendered unconscious by a blow, or at least lost himself in dreamless sleep? The continuity has been broken, and yet, on rousing from his lethargy, seldom does the gap fail to close itself, the old unit reasserting its identity. In cases where the identity is lost we also consider and treat the individual as a new unit, however difficult of explanation the occurrence may be.

It is useless to ask what consciousness is during the gaps. It simply *is not* as such. To try to imagine what it is before the manifestation as we know it, is similar to trying to imagine some other sense than those we already have, or to imagine what consciousness is after dissolution of the body. In speaking of mind and things we speak in terms of the consciousness which we are, and hence if we speak of the beginning of consciousness, we of necessity refer to the first act of self-consciousness, which is referable to the unit we know ourselves to be and to have been. This point must be placed at about the second or third year of life, varying with the individual.

Notwithstanding the fact that full self-consciousness does not appear until years after birth our responsibility to the human organism still exists, even though that organism may still be in undeveloped form. Destruction of the possibility of personality is classed as the vilest of crimes, and he who destroys such possibllity has taken a life into his hands. Such possibility arises as soon as conception has taken place.

The downfall of a people seldom comes through any other source than the moral. Though at times the financial and political aspect may seem to predominate, yet in the final analysis, the moral problem is at the basis. An article by Dr. George J. Engleman (*Jour. A.M.A.*, Oct. 5, 1901) places be-

fore the American people a statistical record both alarming and disgraceful. "The results obtained indicate that at the present time 20 per cent. and over of married women are childless, while in the preceding centuries and in the early days of this country only 2 per cent. were sterile." The proportion rises to 25 per cent. among college graduates of today.

The following table, taken from a revised article in the same Journal, December 7, 1901, speaks for itself:

DIVORCE.

A.—Ratio of Divorces to Marriages.

	Year.	No. of Divorces to 100,000 Marriages.	No. of Marriages to one Divorce.
Indiana	1900	17,000	5.7 : 1
Rhode Island	1898	12,000	8.2 : 1
Ohio	1899	9,174	10.9 : 1
Michigan	1898	8,928	11.2 : 1
Connecticut	1899	6,330	15.8 : 1
Massachusetts	1898	5,347	18.7 : 1

B.—Ratio of Divorce to Married Couples.

	Year.	No. of Divorces to 100,000 Married Couples.	No. of Married Couples to one Divorce.
Michigan	1874	306	326
Michigan	1894	418	240
United States	1880	203	490
United States	1890	540	185
Switzerland	—Mostly for 1885—	195	513
Denmark		184	543
France		80	1,250
Germany		77	1,300
Sweden-Norway		27	3,704
New South Wales		26	3,846
Russia-in-Europe		11	9,090
Italy		10.6	9,434
South Australia		10.4	9,615
United Kingdom		8.6	11,600
Canada		1.6	63,000

C.—Increase of Divorce as Exemplified by Rhode Island.

Year.	No. of Marriages.	No. of Divorces.	No. of Marriages to one Divorce.
1890	3,195	294	13.1 : 1
1891	3,320	275	12.1 : 1
1892	3,502	296	11.8 : 1
1893	3,544	301	11.8 : 1
1894	3,271	280	11.7 : 1
1895	3,497	373	9.4 : 1
1896	3,327	363	9.2 : 1
1897	3,137	372	8.4 : 1
1898	3,278	400	8.2 : 1

In the face of such facts an appeal for social morality would scarcely seem necessary. The American people put too low an estimate upon a human life. Not all of our decadence in this regard is due to sterility as such. Suffice it to say that the marriage vow is holy, and a life *in utero* is sacred in that it represents the possibllity of self-consciousness and he who interrupts the development of that life, except as a means of saving a life more developed, is guilty of murder.

A French League against Infant Mortality.

A league against infant mortality has recently been founded in Paris,the object of which is to set in operation and promote in every possible way a movement for the lessening of the terrible mortality among French babies. One of the chief objects of the league if the study of the causes of this mortality. It will also assist the public authorities in organizing a system of home visits, in establishing crèches, places for the supply of milk, dispensaries,etc., and in watching over infants put out to nurse. The league will also strive to educate the public mind as to the principles of infantile hygiene and the rearing of children.—*Brit. M. J.*

The Study of Malarial Fever.

We are informed that in future the surgeons of the ships of the Imperial Direct West Indian Mail Service (Elder, Dempster & Co.), which sail between Bristol and Jamaica, will be provided with an outfit for taking blood films in cases of suspected malarial fever. Each outfit consists of cover glasses, forceps and small bottles of absolute alcohol for fixing and holding the films when taken; a printed form containing directions for taking and preserving the films and for filling in clinical details of the cases, is also provided. On arrival at Bristol, the films will be sent to Dr. J. O. Symes, of the Bristol Medical School, for report and classification, and will then be available for demonstration purposes. Although Jamaica itself is comparatively free from malarial fever,it is anticipated that a considerable number of specimens will be obtained from patients coming from other parts of the West Indies, and the careful classification of these will,it is hoped, throw some light upon the varieties of fever endemic in that part of the world. —*British Medical Journal.*

SOCIETY REPORTS

NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Stated Meeting, February 13, 1901.

ROWLAND G. FREEMAN, M.D., Chairman.

Acquired Syphilis in a Little Girl.—Dr. SARA WELT-KAKELS presented a girl of eight years, who had been in good health up to about seven weeks ago. At that time, while bathing, the mother noticed a sore on the child's external genitalia, and the little one complained of frequent and painful urination. Examination showed an enormously enlarged clitoris, and in the deeper part of this swelling the initial lesion of syphilis. The manner in which it had been acquired could not be learned. At the present time there was decided enlargement of the post-auricular, epitrochlear and inguinal lymph-nodes, in fact of the lymph nodes generally, and the body was the seat of macular syphilitic eruption.

Stomatitis Due to Vincent's Bacillus.—Dr. HENRY HEIMAN exhibited two children having that form of ulcero-membranous stomatitis found associated with the bacillus of Vincent and the spirillum of Müller. Dr. Heiman said that the characteristic organism could be readily demonstrated by making a smear and staining it with carbol-fuchsin. The case was progressing satisfactorily under applications of a 10 per cent. solution of silver nitrate and the use of a permanganate of potassium mouth wash.

Dr. E. LIBMAN contended that the bacilli of Vincent were not characteristic of any particular disease, as they had been found under other conditions, and appeared to be associated with destruction of tissue. The finding of this bacillus in a given case of stomatitis was not sufficient to exclude syphilis, though it might serve to eliminate diphtheria.

The Pathology of Adenoids and of the Tonsil.—Dr. A. J. LARTIGAU read a paper with this title, but confined his remarks to a few of the more prominent points, notably tubercular infection. The latter, he said, might be both primary and secondary, but the former was quite rare. The tuberculous lesions of the tonsil were few and focal in character. Secondary infection of the tonsil occurred in about 80 per cent. of the cases of pulmonary tuberculosis with extensive cavity formation.

Operative Treatment of Adenoids and Enlarged Tonsils.—Dr. W. K. Simpson read this paper. He took the ground that all hypertrophied tonsils and adenoids of sufficient size to give rise to symptoms should be removed by operation, for if allowed to remain they were responsible for a large number of the ills of childhood. Thus they repeatedly caused attacks of coryza, asthma, spasmodic croup and bronchitis, and gave rise to chronic rhinitis, arrest of nasal development, nasal stenosis and mouth-breathing, with all that this implies. These growths were almost the sole cause of middle ear deafness occurring as a result of suppurative otitis media. Before operating, a digital exploration should always be made and this examination should be repeated after the operation. The selection of the curette or the forceps was largely a matter of personal opinion; the use of the finger for the removal of adenoids was mentioned only to condemn it. His personal preference was for the forceps, because with it a larger piece could be brought away and the operator could see what had been removed, whereas with the curette the fragment removed was apt to be lost and might even drop into the larynx. The forceps should, however, be strong, rather large and be possessed of a sufficient cutting edge, and should be so constructed that the uvula and posterior border of the soft palate are shielded from injury. Perhaps the best forceps was Concannon's modification of the Graedle forceps. If a curette were used it should be of sufficient size and of proper curve, a marked curve forward being required for adenoids situated on the vault anteriorly. Some modification of the Gottstein curette was usually employed. It should be introduced well up into the vault, the soft palate being carried forward, and then brought down with one quick sweep. When the forceps are used a mouth-gag is used and the forceps are introduced closed. They are then opened widely, pressed well upward and behind and the mass seized and withdrawn. The patient's head should be raised for a moment during the introduction of the instrument, then lowered and turned to one side to favor the escape of blood.

For the performance of tonsillotomy, Dr. Simpson preferred to use either the simple, strong and thoroughly efficient one of Mackenzie, or Ermold's excellent modification of the more complicated Mathieu tonsillotome. The fork of the instrument should not have a dart on the point, as this only served to embarrass the operator. The great point in removing the tonsil successfully and thoroughly with this instrument was to make outward pressure on the shaft of the instrument and maintain this pressure until the tonsil had been excised. Of course, the assistant makes pressure inward on the tonsil, so as to force the latter into the ring of the tonsillotome. In some cases the tonsils would be found so adherent to the faucial pillars as to require separation with bistouary or scissors before the intro-

duction of the tonsillotome. Occasionally the hypertrophied tonsil was so flat and broad that it could not be encircled by the tonsillotome; here one must use the tonsillar punch or else resort to the tedious and troublesome method of galvanopuncture. It should be remembered that tonsils once thoroughly extirpated do not recur. The question of hemorrhage need not cause anxiety in performing tonsillotomy on children, for although sometimes rather profuse at the time of operation, it usually ceases spontaneously. If the bleeding be severe, the operator should search for the bleeding point, or, if it is a general oozing, he should apply peroxide of hydrogen or the galvanocautery, or a solution of suprarenal extract or of adrenalin. The last mentioned agent he had found exceedingly useful in the removal of the tonsils of older children or of adults, but it should be borne in mind that there was a possibility of secondary hemorrhage after the blood vessels had regained their tone. Douches, sprays, or the insufflation of powders should ordinarily be avoided because they cause undue motion of the throat and in this way predispose to hemorrhage. Cracked ice may be swallowed at short intervals, or ice applied to the throat externally. The patient should be told to remain quietly in the house on a light diet, such articles as bread-crusts, dry crackers and pieces of meat being avoided. The speaker said that he was not in favor of doing tonsillotomy under anesthetics because the patient's gagging served to bring the tonsil into view and when no anesthetic was employed the conditions were better for controlling hemorrhage should it occur. On the contrary the operation for the removal of adenoids was most thoroughly done when a general anesthetic was employed.

Recent Contributions to the Constitutio Lymphatica.—Dr. James Ewing read a paper with this title. The following were said to be the chief clinical features of this condition: (1) General lymphatic hyperplasia; (2) persistence of the thymus; (3) hyperplasia of the aorta and sometimes of the heart; (4) evidences of rachitis; (5) evidences of retarded development of various organs; (6) enlargement of the thyroid; and, (7) general neurotic tendencies.

The author stated that in a former paper he had suggested that many sudden deaths occurring in the course of infectious diseases were dependent upon this lymphatic disease. Since that time several cases, serving to confirm this view, had been reported. The severe type of epilepsy occurs almost wholly in persons of the lymphatic constitution. It should be noted that nervous symptoms are present throughout the course of this disorder and that many cases of thymic asthma and almost all cases of laryngismus stridulus occur in persons of the lymphatic constitution. As yet no satisfactory explanation had been offered for the sudden fatal issue.

Dr. Ewing directed special attention to the great danger of administering chloroform to such subjects, and added since writing his first paper he had heard of upward of fifteen deaths from chloroform occurring in this class of subjects. He was inclined to believe that it was only in such subjects that chloroform exhibited its lethal action.

Notes on the Surgical Treatment of Enlarged Lymph Nodes.—Dr. Charles N. Dowd presented a brief paper on this subject. He advocated the removal of tuberculous lymph nodes as soon as the diagnosis was made. He had done a good many of these operations and without any fatality. The incisions could be so placed that they would cause less disfigurement than the scars following abscess formation. His operative cases had yielded 23 apparent cures, while 47 had been improved. An observer in Germany had reported 130 cases of thorough operation with 70 per cent. of cures, while in 167 non-operative cases there were only 24 per cent. of cures.

Dr. A. Jacobi said that the probable reason for swelling of the tonsils and of the neighboring lymph bodies in children and not in adults was because by repeated attacks of inflammation these parts had become less susceptible to microbic invasion, or possibly a certain degree of immunity had been induced in this way. On the question of operating on adenoids, he, in common with all other physicians, was in favor of operation when the adenoids were large, but when they were so small and few as not to give rise to snoring it seemed to him that operation was uncalled for. The chronicity of pharyngitis, rhinitis, laryngitis and enlargement of the tonsils was usually a local catarrh, and the latter could be prevented if recognized sufficiently early and promptly and appropriately treated. The treatment was simple, consisting in an irrigation of the parts twice a day with saline solution or with a solution of boric acid. A large experience in this field had convinced him that this simple treatment if persisted in would prevent inflammation and restore to health many chronic cases. If specialists would make these irrigations a part of the treatment of their cases after operation less would be heard of relapses. He had never operated for adenoids with the patient under an anesthetic, and was opposed to such practice, because in order to overcome the powerful masseter muscles it was necessary to push the anesthesia to a dangerous degree. The child should be seated in the lap of mother or assistant in front of the operator, and its head should be buried between the operator's thighs. With the Gottstein curette the operation could be completed in one minute.

Dr. Francis J. Quinlan insisted that any kind of irrigation of the nasal passages was apt to prove disastrous by forcing the secretions into the middle ear; moreover he was of the

opinion that these irrigations were useless because they only served to drive the secretions, which come only from the rhinopharynx, back into that region. The occurrence of snoring did not necessarily indicate nasal obstruction, for it might result from the dropping back of the tongue or from the vibration of the soft palate.

Dr. H. D. Chapin agreed with Dr. Jacobi that the mild cases of adenoids did not call for operation and would recover under the simple irrigation treatment.

Dr. W. K. Simpson said that these so-called mild cases proved in the end to be the most severe by reason of the development of an otitis media.

Dr. Dowd said that what he had been told by Dr. Ewing concerning the great dangers of chloroform in persons of the lymphatic constitution should be sufficient to cause the abandonment of the common practice of giving chloroform to children, even though ether was considered the proper anesthetic for adults.

Dr. Jacobi said that the average healthy child bore chloroform better than the adult because its heart was stronger than that of the average adult. Care in diagnosis would prevent the serious mistake of administering chloroform to a child having the lymphatic constitution.

Professor Devoto, of Pavia, has undertaken the direction of a journal entitled *Il Lavoro*, which will deal with all medical and hygienic questions having a bearing on professions and industries. The new journal will fill a gap in the medical journalism of Itaiy.—*Brit. M. J.*

Leprosy in the United States.

It is not unlikely that a bill will be introduced into the United States Congress providing for a Commissioner of Leprosy and a home for lepers. The bill provides for a Commissioner of Leprosy who shall be a physician of 10 years' practice, and who shall receive a salary of $5,000 (£1,000) a year. He is to reside in New York or San Francisco. For the erection of buildings for the lepers a sum of $50,000 (£10,000) is to be appropriated. In addition, a square mile of the public domain is to be set aside for the colony. No lepers are to be admitted as immigrants, and persons coming from leprous families are to be under the strict supervision of the authorities for at least seven years.—*Brit. Med. Jour.*

BRITISH MEDICAL ASSOCIATION.

Combined meeting held at Edinburgh, February 21, 1902.

Dr. Argyle Robertson, President.

Of a number of cases exhibited the following will be of special interest to readers of Pediatrics:

Dr. John Thomson exhibited three cases of **dwarfed growth with a peculiar deformity of the cranium.** These were three boys belonging to different families and presenting certain peculiarities in common. Thus all the boys (who are between 10 and 12 years of age) are mentally backward; all are of short stature, being from 6½ to 8 inches shorter than normal children of their respective ages, and all have a similar alteration in the shape of the head, consisting in a flattening of the forehead and a very marked bossing of the frontal and of the parietal regions; there is no deformity of the trunk or limbs; the chief points in the history of the cases are as follows:

The first boy, who is now 10 years of age, was born prematurely and suffered very severely from rickets in infancy, so that he could not walk until he was three years of age.

The second boy was also born prematurely at the seventh month; he suffered from rickets in infancy, with severe anemia and bronchitis, and his liver and spleen were enlarged; he had a very well marked natiform cranium, and the speaker had been able to follow the stages by which this was gradually converted into the present bossed condition.

The third boy was born by Cesarian section, performed by Dr. Halliday Croom. His mother is a dwarf; the child suffered from congenital syphilis in infancy. At the age of one year bossing was beginning to be evident and at two years of age the cranium was natiform; now the forehead is flattened and the bosses are not so well marked.

The absence of deformity of the limbs in these cases is interesting and may be attributed to the fact that with the rickets there was a condition of such extreme muscular weakness that the children had been unable to subject their limbs to the usual pressures and strains.

Mr. H. J. Stiles showed (1), a case of **dyspnea** in a little girl. The child had been brought to him three years ago with the history that she suffered from dyspnea, particularly at night, and that this had been observed ever since she was 4 months old and had gradually got worse. Laryngoscopic examination by Dr. Mackenzie Johnston showed nothing to account for the dyspnea. There was just a suspicion of slight

abductor palsy. Tracheotomy was performed and this relieved the breathing, but it was found impossible to take out the tube and the child was accordingly sent away to the country and when she returned, a year later, she was still wearing the tube. At this time the tube did not seem to fit well; there was a little bleeding and apparently some pressure on the posterior wall of the trachea.

Dr. Mackenzie Johnston again examined the larynx, and now thought he saw some papillary growths. The larynx was accordingly opened and the box of the larynx was found choked with papillomata. When these were removed breathing became quite free, but a tube was still retained, as such cases do better when this is done. The operation was performed 18 months ago, and the tube was removed entirely two months ago. The child now appears to be perfectly well.

Mr. Stiles also showed (2), a case he had operated on for **double hare-lip and cleft palate.** He showed the case with reference to the treatment of the premaxillary mass, the received methods of dealing with which are unsatisfactory. In this case, instead of slitting the nasal septum behind the premaxillary mass, he made a longitudinal incision at the lower edge of the vomer behind the projection and stripped off a considerable portion of the mucous membrane and periosteum. He then snipped away a good-sized wedge of bone. In such cases the bone is very strong owing to the fusion of the vomer and the premaxilla. After removal of the wedge the projecting mass was easily pushed back and retained in position by a wire. By this method one obtains a good support for the upper lip, and thus the deformity is avoided which results when the premaxilla is removed. After such an operation as described the hare-lip may be treated at once, or, if the child is delicate, left till a later period.

Dr. Allan Jamieson showed a little girl, eight years of age, who was suffering from a very curious chronic skin eruption to which he was unable to give a name. It seemed to him to resemble cases which have been described as **blastomycetic dermatitis.** The eruption was very marked upon the scalp, forearms and hands.

The blood had been examined by Dr. Gulland, and showed an extreme degree of eosinophile leucocytosis, the eosinophile cells numbering as many as 40 per cent. of the total white corpuscles.

Dr. James exhibited four cases of **hypertrophic cirrhosis of the liver** occurring in one family. These patients were (1) a girl, 24 years of age, in whom the disease began at the age of 17 years; (2) a boy, aged 22 years, in whom, also, the disease began at 17 years; (3) a boy of 17 years in whom the first symptoms were noticed at the age of 12 years; and (4), a girl, 8 years of age, who has shown similar symptoms to the others

for about a year. The symptoms have thus appeared at an earlier date in successive members of the family. There is no family history of syphilis nor of tubercle. The two older patients are now seriously ill. The youngest patient is still quite well between the attacks of jaundice and sickness, of which she has had several during the last ten months. During these attacks her liver becomes enlarged. There can be no doubt that she is suffering from an early stage of the same condition as the other patients.

Dr. Norman Walker showed a patient suffering from a peculiar rash, which had followed vaccination with glycerinated calf-lymph. The rash had a very close resemblance to the rash of smallpox at an early stage and was therefore interesting from the point of view of diagnosis. He had seen several similar cases and attributed the eruption to the vaccination.

In addition to the clinical meeting there was an interesting exhibition of pathological specimens. W. B. D.

Actinotherapy.

In a preliminary communication upon the use of concentrated light in the treatment of dermal affections, W. S. Gottheil briefly reviews the work done by Finsen, Kime and others in this field, and describes the arc light that he employs for the purpose. This is at present the only available source for the actinic rays of sufficient volume and intensity for therapeutic employment. Sunlight is of course the best and is costless, but it is too uncertain for satisfactory use. No combination of incandescent bulbs run on the ordinary continuous or alternating commercial current is sufficiently actinic, and the apparatuses arranged with them practically give us heat and not light-baths.

The author employs an apparatus called the actinolyte, made by Kliegl Bros., of New York, which can be adapted to either the continuous or the alternating current, uses from 25 to 55 amperes and gives a concentrated circle of light of from 20,000 to 30,000 candle-power. He is not prepared as yet to publish his results, but the progress of cases of lupoid and syphilitic ulceration has been most encouraging. The cosmetic results of this non-operative and painless method of treatment are especially good, a point of the greatest importance when the face is involved.—*Med. News.*

PRACTICAL NOTES

On the initiative of Professors Golgi and Foà of the University of Turin, steps are being taken for the formation of an Italian Pathological Society.—*Brit. M. J.*

The Dangers of the Loving Cup.

Dr. J. Harold Bailey, Port Erin, writes to express the opinion that the use of the loving cup after banquets is a possible source of the dissemination of infective disease, and suggests that the medical profession might set a good example by abandoning the custom.—*Brit. M. J.*

Duhring's Disease in Childhood.

Dermatitis herpetiformis, first described by Professor Duhring, of Philadelphia, is probably of commoner occurrence than is generally supposed, more especially in children; two cases are described by Wm. S. Gottheil, of New York, in the June (1901) number of the *Arch. of Ped.* The resemblance at first sight to an ordinary eczema, dermatitis or impigo is marked, and doubtless cases of the disease are not infrequently so classified. The points which distinguish the less common affection are:

1.—The extreme obstinacy and chronicity of the malady; it being prolonged almost indefinitely by successive exascerbations or relapses.

2.—Its original herpetic character and subsequent multiformity of lesion.

3.—The intense pruritus.

4.—Its recalcitrancy to treatment.

Any apparent eczema, dermatitis, or impetigo in children presenting these features should be carefully observed; a certain number of them will undoubtedly be found to be cases of Duhring's disease.

The Curability of Syphilis.

Speaking of the curability of syphilis in the symposium upon that disease in the October (1901) number of the *Inter. Med. Mag.*, William S. Gottheil, of New York, takes exception to the opinion of its practical incurability which is prevalent in certain quarters. Everyday experience shows that the great majority of cases are cured in every practical sense, the occasional late relapses and accidents to the contrary, notwithstanding, and concludes:—

1.—Syphilis is a curable disease, and may even with restrictions be called a limited one.

2.—While cure in a given case cannot be affirmed with scientific accuracy, the chances of its being the fact after a certain time, under proper treatment, are so great that it may be properly claimed to have been effected.

3.—Practically, a patient who has been properly treated throughout the active stages of the disease and who has had no manifestations of its persistence for several years thereafter may be regarded as cured and may be told so.

The Unrecognized Chancre.

In the *Inter. Med. Mag.* for October, William S. Gottheil calls attention to the frequent insignificance and fugacity of the syphilitic initial lesion, which leads to its non-recognition in quite a large proportion of cases. Ignorance of its occurrence and not voluntary falsification is the cause of the frequent absence of a syphilitic history in undoubtedly specific cases. The author calls attention to the following points of diagnosis:

1. The presence of a tumor as the original lesion. In its essence and invariably at the beginning the chancre is a small, round cell accumulation in the skin or subcutaneous tissue. Ulceration may occur and usually does, or even phagadenism; but these are accidental, and epiphenomena, and almost invariably the specific induration is appreciable at the base of the lesion.

2. The tumor is indolent, painful and recalcitrant to treatment.

3. A peculiar and characteristic "stony" induration of the nearest lymphatic glands accompanies it, different from the

general adenopathy that occurs later as a consequence of the systemic infection. Other lesions, as gummata, never show it.

4. Chancre runs its full course in a few weeks, while tuberculosis takes months and carcinoma even years for its development.

5. The well known signs of general luetic infection, osteocopic pain, cephalagia, synovitis, general lymphadenitis, exanthem, etc., must be carefully and persistently searched for in every suspicious case. They may be so slight as to entirely escape careless examination.

The Prevention of Consumption.

Notification.

The committee of the London Reform Union passed at its last meeting the following resolution:

"That the executive committee of the London Reform Union, recognizing the important part which a system of voluntary notification must play in the war against consumption, which the people of this country under the leadership of the King have entered upon, and the success which has attended its adoption by many municipal authorities, earnestly urges those metropolitan borough councils where this method is not employed to introduce it at the earliest possible moment."

Already notification is in force in the City, Finsbury, Hampstead, Kensington, Southwark, Stoke Newington and Woolwich. To emphasize this appeal a leaflet detailing the advantages of notification has been issued by the Union.

Proposed Notification in Edinburgh.

The Public Health Committee of Edinburgh Town Council, at its meeting on February 4, 1902, decided to recommend the council to hold a special meeting on February 12th to discuss the addition of consumption to the list of notifiable diseases. —*British Medical Journal.*

ABSTRACTS

A CASE OF APPENDICITIS WITH UNUSUAL MANIFESTATIONS.

Charles McBurney (*Med. Rec.*, Feb. 22, 1902) reports the following case: The patient was a young lady, 24 years old, who, during the middle of last summer, had an attack of illness which was recognized by a very competent observer as one of moderately acute appendicitis. It subsided in the course of a week and the patient remained perfectly well until ten days ago, when she began to complain of intra-abdominal pain. She was in consultation with Dr. Kinnicutt, and because of her rising pulse and temperature an early operation was deemed advisable. The peculiarity of the case consisted chiefly in the location of the pain or tenderness. Over the ordinary situation of the appendix there was absolutely none. The belly was flat, and as one palpated upward in the right loin, the tenderness became more and more intense up to the right hypochondrium, where the maximum tenderness existed. On passing the left hand under the loin and behind the right kidney one could very distinctly lift up a small inflammatory mass, evidently that of an inflamed appendix involving other tissues. It was perfectly clear that it was not the kidney, but when the kidney was raised, it also lifted this inflammatory mass.

With these facts in mind, an incision was made a good deal higher than the ordinary incision for appendicitis. The colon was found and drawn upward out of the wound, in order to bring the base of the appendix into view, but instead of drawing up the caput coli, Dr. McBurney said he found that he was drawing the transverse colon into the wound. This was thereupon put back and the intestine pulled down from above, and this very soon brought the inflammatory mass into view, but it was necessary to enlarge the external wound before access could be gained to it. When the inflammatory mass was brought out through the wound it was impossible to recognize in it any portion of the appendix, and yet there was no intervening tissue. One could feel an indurated, small tumor but could not make out any outline. Eventually, by cutting through a covering of peritoneum the appendix was made out; it was completely buried in the wall of the colon and covered by a remnant of fetal life in the form of a very complete peritoneal sac. This had to be incised before the appendix could be dissected out, then it was found easy to remove it, as it was distended with fluid. The wound was closed without suturing and the patient made an uneventful recovery.

The appendix, on incision, proved to be a closed cyst, which was filled with pus and fluid feces and a single concretion. The sac was considerably distended by the fluid which it contained, and on its inner wall were two necrotic spots, but it was not perforated.

ARSENIC IN THE HAIR OF BERI-BERI PATIENTS FROM PENANG.

Major Ronald Ross writes as follows in the *Brit. Med. Jour.* for Feb. 8, 1902: Since Newall and Prytherch pointed out the similarity to beri-beri of the Chester cases of peripheral neuritis, and Reynolds demonstrated that the Manchester outbreak was due to chronic arsenical poisoning, the question whether many cases ascribed in the tropics to beri-beri may not be caused by arsenic has been much discussed. A little while ago Reynolds and myself published a case of so-called beri-beri from Sierra Leone, in the hair of which arsenic had been found by Dr. Dixon Mann.

Recently I received twenty samples of hair from beri-beri patients, mostly Chinese, sent to me for analysis by Dr. Herbert Fry, of the Government General Hospital, Penang, a known beri-beri locality, and one sample from Dr. Dalgetty, of Adampur, South Sylhet, India. The samples were analyzed by Prof. Dixon Mann, and he has now reported that 6 out of the 20 samples from Penang contained arsenic, 2 yielded "more than a trace," 2 yielded "a trace," 2 "a minute trace," and the rest yielded none at all. The case from Adampur was negative.

Dr. Dixon Mann adds: "In relation to arsenic the results are indefinite as regards its being a causal agent; only 6 cases out of 21 gave positive evidence. In all the cases the quantity of hair sent was quite sufficient to have yielded evidence of arsenic had it been present. The fact that arsenic was present in some cases is not without significance, however, and I suppose the question for the present must remain open." Certainly the result shows that some of the cases had been in contact with arsenic.

After I received the report I detected a curious apparent relation between the presence of arsenic and the duration of the cases from Penang. Nearly all the positive cases were recent, and nearly all the negative cases were older.

This result certainly augments the evidence in favor of the cases being arsenical, since it suggests that the arsenic was present only at a certain stage of the disease. But the relation may be only a coincidence.

I asked Prof. Dixon Mann whether, even in undoubted cases of arsenical poisoning, arsenic is sure to be found in the hair. He replied that in very recent cases it might not have time to get there; while in old cases the arsenicated hair may be shed or cut away. Hence in a Chinaman's queue the arsenicated portion may occur some way down. Dr. Fry does not mention from what part he took his samples, and this may have much to do with the result. I suggest that samples should be taken from near the scalp and that the duration of the case and other details be carefully inquired into.

The chances against 5 of the positive cases being found in the first 6 cases by mere coincidence have been calcalated out for me by the Calculus of Probabilities and amount to 2,583 to 1. Hence the probability is very strong that the Penang beri-beri is arsenical, especially when we know that the people there largely work in tin manufacturies and are brought closely into contact with arsenic.

A CASE OF TRANSPOSITION OF VISCERA.

Dr. John Galwey Cooke (*Brit. Med. Jour.*, Feb. 8, 1902) writes as follows: As the condition is a rare one, I desire to put on record the following case, which has been under my care at the County Infirmary, Londonderry:

J. G., aged 15 years, an ill-developed, very anemic girl, came under my charge for a lateral curvature of the spine. On examination, she was found to have the heart on the right side, the liver on the left and the spleen on the right. The organs were in their usual positions in regard to the ribs, and the condition has never given rise to inconvenience, and was quite unknown to the patient and her friends.

The spinal curve (dorsal) has its convexity to the left. She is right-handed; has always been good at calisthenic exercises, and so far as I can learn, has been healthy until a few months ago, when the spinal curvature was first noticed.

PRELIMINARY NOTE ON THE POSSIBILITY OF TREATING MITRAL STENOSIS BY SURGICAL METHODS.

Lauder Brunton (*Lancet*) discusses the possibility of dividing stenosed mitral valves. He has tried the operation on the cadaver and upon a living animal, and calls the attention of surgeons to the matter, for the operation, if ever done, must be done by them. The first question that arises, he says, is whether the mitral orifice should be enlarged by elongating the natural opening or whether the valves should be cut through their middle at right angles to the normal opening. He thinks there can be but little doubt that the former would be the better plan, but the latter is more easily performed, and it might be sufficient to effect the desired purpose of facilitating the flow of blood from the auricle into the ventricle. He describes the knives he has used and his plan for exposing the heart, following the suggestions of Ninni of Naples. It consists in making incisions from the left edge of the sternum outwards to the left along the lower edges of the third and fifth ribs. The window thus made is forcibly turned back on the sternum, the sternal attachments of the ribs yielding to the pressure. In this way the heart is sufficiently exposed, and the lung being pushed back, the pericardium can be divided and the knife can be introduced into the ventricle. He has only inserted the knife into the ventricle *in situ*, and if one wished to operate through the auricle the window wound would probably require to be made by an incision at the lower border of the second rib, although by pulling upon the heart it might be displaced sufficiently to allow a knife to be put into the auricle even when the incision is made at the lower border of the third rib. In many experiments made for other purposes he says he has been astonished at the way in which the heart went on beating, apparently quite unaffected by pulling, compressing, or handling of any kind. In operating upon the heart the knife should be introduced during diastole, as one is less likely to wound the opposite wall of the ventricle. The pericardium should not only be opened for convenience of operation, but should be left open, so as to allow any blood which might ooze through the ventricular wound to flow away instead of remaining in the pericardial cavity, for the heart has very little power, indeed, to resist pressure from pericardial distension, especially if it comes on rapidly.—*Med. Rec.*

GASTRIC DISORDERS FOLLOWING ETHER ANESTHESIA.

Ralph J. Hess (*Med. Record*, Feb. 22, 1902) concludes as follows:

1. Post-anesthesia vomiting is a source of danger and great discomfort to the patient, and is preventable.

2. It is due to excretion of ether into stomach, with resulting acute gastritis.

3. Drugs are of no avail in prevention or treatment of post-anesthetic vomiting.

4. The present technique of preparation of patients for etherization is faulty, in that fluids are usually entirely prohibited or limited, whereas they should be pushed to aid in excretion of ether.

5. The dose of ether should be as small as possible and the strength of ether vapor should not cause bronchial irritation with an excess of mucus.

6. The combined use of N_2O and ether give the best results.

7. In anticipation of gastric irritation, give one to two glasses of water just before beginning anesthetic.

AN ASEPTIC CLINICAL THERMOMETER.

To meet the requirements of a practical pocket sterilizer for thermometers, an antiseptic thermometer case has been devised recently. This consists of a heavy annealed glass tube for holding the antiseptic solution; a rubber diaphragm resting upon the mouth of this tube and making a water-tight closure; a hard-rubber neck band for retaining the diaphragm in position; a hard-rubber screw-cap, to which is attached the thermometer, and a safety chain for fastening the whole securely to the clothing. In using this appliance the glass tube is nearly filled with an antiseptic solution, such as corrosive sublimate 1-500. The neck-band, with diaphragm, is then replaced, and the thermometer inserted through the perforation the diaphragm. This may then be safely carried in the pocket, since the toughness of the glass insures it against breakage, and the diaphragm prevents leakage.

To remove the thermometer from the case it is only necessary to unscrew the cap. On withdrawal of the thermometer, the diaphragm completely closes, so that the solution cannot run out, even though the case be inverted. The thermometer is returned to the case with equal ease. This case is commendable because it is simple in construction and operation; is convenient in size; will not leak, and the thermometer is effectively sterilized, since it is always immersed in the antiseptic solution when not in active use.—*Med. Rec.*

MEASLES IN ALASKA.

The great mortality among the natives of Western Alaska during the year of 1900, which has been variously attributed to grip, epidemic pneumonia, smallpox, etc., has been found to have been due to an epidemic of measles. The disease, which was epidemic in various fishing villages on the eastern coast of Siberia, is supposed to to have been carried by in-

fected natives on whaling vessels to the mainland of Alaska and the adjacent islands. The disease spread until it covered the whole territory occupied by the Eskimos and the Aleuts. At Nome a few cases appeared among the white population, but there was no mortality; on the other hand the natives succumbed readily to the pulmonary complications and sequels of the disease, the death-rate in the recorded cases reaching 50 per cent. At Kuskowim the entire native population was affected, with a mortality rate of not less than 33 per cent. The disease as observed among the Aleuts at Unalaska presented the ordinary clinical picture but a severe bronchial involvement marked the fatal cases, which reached 40 per cent. of the population. The lowest death-rate was on the small and isolated island of Akutan; here the entire population of 64 persons contracted the disease, with only two deaths, both children. A review of the statistics is interesting, as the extreme susceptibility of unprotected people to infectious diseases and the consequent depopulation is clearly demonstrated.—*American Medicine.*

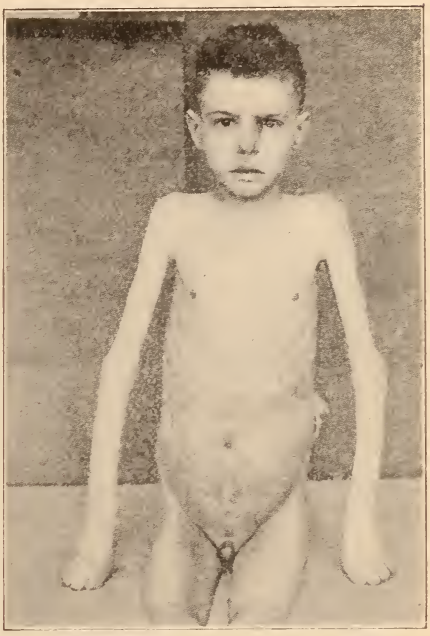
THE OPERATIVE TREATMENT OF CHRONIC BRIGHT'S DISEASE.

A. Primrose (*Canadian Jour of M. and S.*, March, 1902) says that the attention of the profession has recently been directed to the fact that albuminuria as a symptom of renal disease may completely disappear after certain operations upon the kidney. It is now suggested that chronic Bright's disease may be so cured. Occasionally a patient presents himself with symptoms indicating the presence of a renal calculus, and an operation is undertaken for his relief. The operator may fail to detect the presence of a stone, but in spite of that fact the symptoms may be relieved by the operation. In these cases the albuminuria, which had previously existed, may completely disappear and the other symptoms of renal disturbance may also be relieved, so that a complete and permanent cure is effected. This train of events has been recognized as possible for some years, but the significance of them and the bearing they might have upon the cure of nephritis by operative procedure have but recently been fully realized.

It was with the object of relieving grave symptoms in a case of chronic Bright's disease that the author undertook recently to operate upon the kidneys. A child 10 years of age suffered from nephritis. The history is obscure as to the onset of his illness, but for six months before, he had general anasarca and ascites. During that time paracentesis abdominis had been performed seven times. On admission to the hospital on Nov. 8th, 1901, the urine contained 1.6 per cent. of albumin, the abdomen was enormously distended with fluid and there was great swelling of the face and edema of the extremities, The lad's general condition was considered very serious and a gloomy prognosis was given. Paracentesis abdominis was performed and 180 ounces of fluid drawn off from the peritoneal cavity. The urine, which contained the large amount of albumin indicated, also contained numerous hyaline, granular and epithelial casts. On November 21st he cut down upon the right kidney in the loin; he

found it much enlarged, and made an incision 2 inches long through the capsule and subsequently drained the lumbar wound for a fortnight. As a result of the operation the amount of urine secreted in 24 hours gradually increased from 14 ounces in 24 hours to 40 ounces on the seventh day after the operation, while the percentage amount of albumin diminished from 1.6 per cent. to 0.8 per cent. The child's condition, however, did not continue to improve and it appeared evident that permanent relief of symptoms had not been secured. One was encouraged, however, by the profound effect produced upon the condition of the patient by the simple operation upon the right kidney of splitting the capsule and it was therefore thought justifiable to perform a more extensive operation upon the

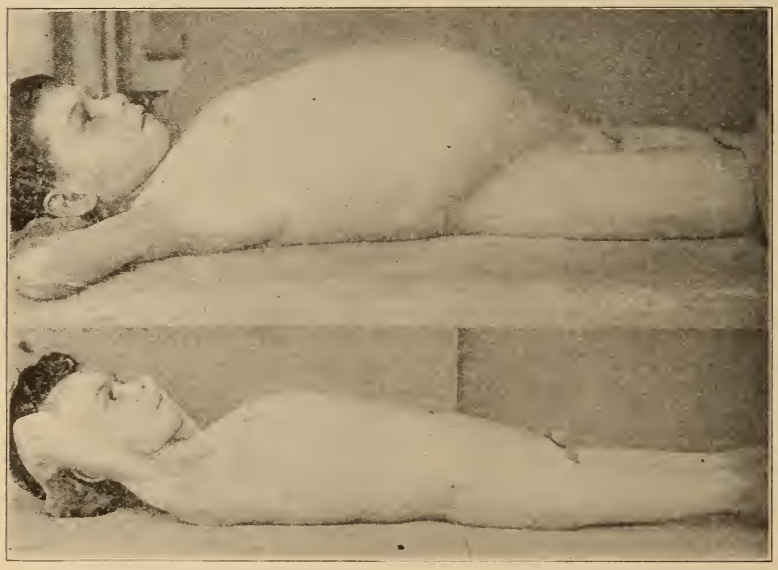
Photograph of patient on November 19, 1901, two days before the first operation on the kidney



Photograph of patient on February 3, 1902, forty-five days after the last operation on the kidney.

left kidney. Accordingly, on December 20th, 42 days after admission to the hospital he cut down upon the left kidney and removed the kidney capsule in its entirety. The child was critically ill for some days subsequently, and unfortunately contracted pneumonia towards the end of the first week after operation. He despaired of his life, but he gradually recovered from the pneumonia and the renal symptoms underwent a remarkable abatement, so that while the amount secreted in 24 hours rose to 44 ounces the amount of albumin diminished to 0.3 per cent.; in fact there remained little more than a mere trace of albumin and the casts were also very largely diminished in number. The general edema vanished and the ascitic fluid was reabsorbed and disappeared.

Mr. Reginald Harrison has suggested an explanation which appears to be reasonable if applied to certain classes of cases. He believes that renal tension is relieved by splitting the capsule and thus the kidney is permitted to perform its normal function. That renal tension exists in acute nephritis no one will deny; such rapid swelling of the organ has occurred that post mortem, the capsule has been found to have actually burst. Well recognized principles of surgery may therefore be employed here, and an incision of an acutely inflamed kidney may by relieving tension, afford relief and effect a cure, just as glaucoma is relieved by iridectomy, or an acute orchitis is relieved by incision. These are comparisons suggested by Mr. Harrison, and we cannot but agree that the arguments he advances along these lines for incision of the capsule of the kidney in acute nephritis are logical. The explanation is, however, not adequate for those cases of albuminuria of long standing which are relieved by a simple nephrotomy.



The upper photograph was taken on November 19, 1901, two days before the first operation. The lower photograph was taken on February 3, 1902, forty-five days after the last operation on the kidney.

Mr. Harrison's successful cases are those of post-scarlatinal nephritis; nephritis contracted by exposure to cold; nephritis after influenza and that of traumatic origin. He has also observed the disappearance of albumin after operation in calculous nephritis.

The disappearance of albumin and casts from the urine after operation on the kidney had been noted by many observers. such as Rose, Newman and Ferguson. We are mainly indebted, however, to Harrison, in England, and to Edebohls, in America, for pointing out the bearing which these results have on the question of the possibility of curing albuminuria by surgical means.

Edebohls believes that as the result of the operation of decapsulation strong bands of adhesions form between the kidney and its immediate surroundings; large blood vessels run in these and thus the blood supply to the kidney is greatly increased; this, he believes, "allows of gradual absorption of interstitial and inflammatory products, freeing tubules and glomeruli from external compression, constriction and distortion and permits establishment in them of normal circulation, resulting in regeneration and reproduction of the new epithelium." The cure, in his opinion, is gradual and progressive, and the final disappearance of albumin and casts may not occur for from one to twelve months after operation.

MALNUTRITION AS SHOWN IN CONGENITAL SYPHILIS.

C. G. Kerley (*Med. News*, March 22, 1902) says that a recent severe syphilitic infection in one or both parents results in either sterility or, if conception occurs, the death of the fetus. When there is a more remote infection or one in which the severity is less pronounced, perhaps as a result of the treatment, the pregnancy may go to term, the fruit showing marked evidences of disease; or, if the child be born apparently well, the characteristic signs of congenital syphilis appear in a month or two.

The so-called tardy hereditary syphilis, manifested by faulty development and the well known interstitial changes, indicate a more remote infection on the part of the parents or their more successful treatment. The so-called "cured" syphilitics are the parents of tardy hereditary cases. When does the syphilitic poison in an individual completely lose its power, so that the offspring will show no signs of contamination? The answer is this: We can never promise a man or woman who has had syphilis that his or her children will be free from the disease.

He has seen six cases of this nature in which the fathers of the patients confessed to having had syphilis. In three the diagnosis was further confirmed by successful antisyphilitic treatment.

Given a family such as this, father and mother of average health and strength, with a negative family history, child or children "delicate," undersized and underweight, with lack of endurance, low vitality, indifferent food capacity, poor appetite he adds bichloride of mercury or iodide of potassium to the treatment, regardless of the social standing of the parents, and is usually gratified, but never surprised, at the satisfactory outcome.

He has learned to look with suspicion upon puny, delicate children of parents of average good health, when there is no discoverable reason for the malnutrition, and who persistently resist well-directed hygienic and supporting measures.

THE TREATMENT OF GRAVE SCARLATINA.

M. Arviragnet (*Presse Médicale: Revue Médicale*, October 9, 1901) prefers hydrotherapy to antithermic remedies and gives baths at from 64 to 68° F. in the adult, or at 77° F. in Children. In the latter case, if

the applications are to be long continued, cold envelopments are better borne. The cold bath is indicated in the ataxic forms; but, if the disturbance does not coincide with elevation of temperature, hot baths act better. Hydrate of chloral is of service in persistent cases. For adynamia and in the algid forms, M. Arviragnet recommends injections of artificial serum, camphorated oil, or ether. In the cardiobulbar forms, with irregular heart action and respiration and a tendency to syncope the best results are obtained by injections of caffeine, from 3 to 7½ grains ("0.20 à 0.50 centigr.") This dose seems very large, and we urge caution; sparteine ¾ grain ("0.05 centigr."; this also seems large for one injection) and strychnine 1-65 grain.

In the hemorrhagic forms, in addition to the preceding measures as called for, ergotin, iron perchloride, rhatany and hamamelis are recommended. Mr. Comby prescribes:

℞

Gallic acid..... .....15 grains
Syrup of orange flowers.....450 minims
Distilled water..... ...1,200 "

M.—A coffeespoonful every hour.

M. H. Roger is well pleased with the result of chloride of calcium in hemorrhagic scarlatina. His prescription for an adult is:

℞

Crystallized calcium chloride,
from 60 to 90 grains
Syrup of bitter orange peel.....10 drams
Old brandy (or rum).....1 ounce
Tincture of cinnamon.....75 minims
Distilled water .....to 4 ounces

M.—To be taken in divided doses in the 24 hours.

Solutions of gelatin have their indications in epistaxis and uterine hemorrhages. Intestinal hemorrhages may be combated with large enemata of boiled saline solution containing either tannic acid or rhatany.—*N. Y. Med. Jour.*

ERADICATION OF SCARLET FEVER.

J. W. Ames (*Physician and Surgeon*) believes that the carrying out of the following regulations will lead to an eradication of scarlet fever:

1. Every suspected case should be promptly isolated until the diagnosis can be positively confirmed.

2. After confirmation, make isolation absolute, and report the case to the Health Department.

3. Instruct the family to keep the patient isolated until all signs of peeling are invisible.

4. All members of the family who desire to leave the house must do so the first day after their clothing has been disinfected. This will take six hours, as all their apparel must be placed in a sealed room and ex-

posed to formaldehyde gas for at least that length of time to insure public safety, and they must remain away until quarantine is removed.

5. No person should leave the infected area after 14 days' continuous exposure, unless the sick patient is free from desquamation.

6. The attending physician should have as little contact as possible with the patient; cleanse his hands thoroughly and disinfect his clothing before entering another house.

7. The character and duration of the isolation must be left to the Public Health Department. Thorough disinfection with formaldehyde 10 ounces to 1,000 cubic feet, the germs having now been corralled, will destroy them and thus end the existence of the disease.—*Med. Rec.*

APPENDICITIS IN CHILDREN OF TWO YEARS AND UNDER.

Griffith (*University of Penn. Med. Bulletin*, October, 1901) has seen two cases in children of 4 and 4½ years respectively. Each of these was operated upon and pus found, but in neither could the appendix be discovered. Recently Griffith has seen also a case in a child of 3 years. Here, too, an abscess cavity was evacuated, but the appendix was undiscovered.

Statistics show that the disease is decidedly uncommon under the age of five years, and especially so in infancy. At the age of two years or less the affection can certainly be called rare, and the younger the child the less common it appears to be. Griffith presents a list of fifteen cases of the complaint in children of two years or less. One of these cases is reported by himself—a girl of 3 months. A gangrenous appendix was found at autopsy; there was general peritonitis and no perforation. The youngest case in the list is reported by Pollard; in a boy of six weeks there was hernia of the appendix into the scrotum, there was an abscess, operation was performed and the boy recovered.

In nine of the fifteen cases the appendix was found to be perforated. In four cases the appendix had descended into the scrotum. Nine of the cases were operated upon with seven recoveries. In two cases the disease had been diagnosed as intussusception.—*Ther. Gaz.*

DIAGNOSIS OF SCARLATINA.

J. M. Day (*Dublin Jour. of Med. Science*, March, 1902) says that from time to time cases are seen which are very difficult to determine. So the author enumerates the symptoms. Nausea or actual vomiting is rarely absent. Sore throat may be present without the patient complaining, so an examination should be the routine with children; in scarlatina the pharynx, soft palate, tonsils and hard palate present a red punctiform appearance which is easily recognized. The temperature in the beginning is 100 to 104° F., and the next day it falls, to rise again in the evening. It generally becomes normal by the eighth or tenth day. The pulse is more characteristic, seldom being below 120 and often continuing rapid

after the temperature is normal. The rash is never seen on the end of the nose or around the lips, and appears first where the skin is softest, as in the flexure aspect of the arms, the sides of the chest, the lowest part of the abdomen, the upper part of the thighs and in the axilla. It is almost invariably out by the third day. At the flexed elbow, at Poupart's ligament and behind the flexed knee, a browning along the folds of the skin is noted. The tongue is coated heavily and the injected papillæ show through; when the coating strips off, the true "strawberry" tongue is seen. This is a red (not coated) tongue, bearing red papillæ. In a doubtful case the author excludes scarlatina if the patient has had the disease; if not, he examines for rash on palate, backs of hands or sides of fingers, browning of the flexures, stripping of the tongue and reddish spots, smaller and more acuminate than rose spots, on the lower limbs. These, with vomiting or nausea, justify isolation. Otorrhea is sometimes the first marked manifestation in mild cases. In measles the rash appears on the fourth day of catarrhal symptoms and appears first on the face and upper parts of the body. It consists of raised, reddish-brown crescentic spots. In rubella the pulse is slower and the patient does not feel ill in proportion to the amount of the rash. The peeling of the tongue is absent, and vomiting is rare. Other diseases occasionally closely simulating scarlet fever are meningitis, typhoid fever, septicemia, rheumatic fever, urticaria and erythema, but these can be distinguished in the course of the disease.—*Med. News.*

PEDIATRICS

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EDITORIAL COMMENTS

Pathological Conditions in Bright's Disease in Children

This subject is again attracting the attention it deserves. Dr. Henry Ashby, in a recent article (Bright's Disease in Children, *The Practitioner*, December, 1901) very forcibly says: "It is hardly necessary to remark that the systematic examination of the urine of sick infants and children is just as important as the examination of the urine of adults, and that unless such systematic investigations are made, renal complications will certainly be overlooked.

The author divides the forms of inflammation of the kidneys into acute, or subacute; chronic, usually the result of one or more acute attacks; granular contracted kidney, which is chronic from first to last and is associated with cardiac hypertrophy and vascular changes; and lastly, septic nephritis.

"*Acute or Subacute Tubular Nephritis.*—This form of inflammation involves the kidneys to their whole extent, though in some areas the changes may be less marked than in others; it is a croupous or fibrinous inflammation which reminds one of an acute pneumonia more than anything else. The predisposing cause in the majority of cases is the toxin of scarlet fever; in rare cases it follows influenza, varicella, pneumonia, measles and diphtheria; in a by no means small class of cases it appears to be primary, the patient having been quite well up to the time of attack. The exciting cause is not always clear, but in some instances at least it is a chill. The

anatomical condition is an inflammatory engorgement of the organ accompanied by pyrexia and exudation from the blood vessels into the tubules, with the result that the tubules become more or less plugged with fibrin and the outflow of urine is obstructed. If this choked condition remains for long, the part of the tubule behind the plug dilates and the epithelium is flattened. Another result of the inflammation is to affect the nutrition of the epithelium lining the tubules and glomerular capsules, and reflected over the glomeruli. The epithelium of the tubules becomes swollen and granular, and there is usually a hyperplasia of the epithelium lining the capsule, and as time goes on young fibroid cells are formed within the capsules and around the glomeruli.

"In the more chronic cases the changes are not always the same; in some but little can be noted except marked changes in the epithelium of the tubuli with dilatation and many casts. In others the fibroid changes are very striking, especially in the space between the glomeruli and their capsules, the capillary loop being compressed and put out of function. In making these examinations of children dying with nephritis it must be borne in mind that death often occurs from complications, and by no means always from uremia, and in the former case the changes are likely to be less advanced than in the latter. In some of the acute cases dying in an early stage the glomeruli are much enlarged in consequence of a hyperplasia of the nuclei of the epithelium covering them and the lumen of the capillary loops may be seen to be blocked with clear fibrinous plugs.

"In other cases which truly deserve the name of chronic, such as come into the wards from time to time in a water-logged condition, with pale, bloated faces and general anasarca, the typical 'enlarged white kidney' is usually found post-mortem. These kidneys are often very much enlarged as, for instance, the kidneys of a girl of twelve years who had suffered from chronic nephritis for some years; they weighed together 22¾ ounces.

"*Chronic Nephritis.*—Chronic kidney disease occurring during early life is, for the most part, the result of a series of acute attacks, each attack leaving the kidneys in a more and more damaged condition.

"While chronic nephritis during early life is in the majority of cases of the large white variety, typical 'red granular kidneys' may occasionally be seen. In these cases the

disease has been chronic from the first, and the contracted kidneys are associated with an hypertrophied left ventricle and atheroma.

"*Septic Nephritis.*—In the severe and complicated forms of scarlet fever, in which the temperature continues high during the second and third week, the kidneys are apt to join in the inflammation, or, rather, the general septic condition. The toxins of septicemia are apt to affect the kidney, and the microörganisms, especially streptococci, present in the blood are certain to affect the kidneys, and be cultivated there. The kidneys in such cases are found at the *post-mortem* to be large and flabby; there are usually minute hemorrhages and often small points of suppuration are seen at the bases of the pyramids. A microscopical examination shows a high degree of epithelial degeneration, many leucocytes surrounding the capillaries and small vessels, or perhaps whole tracts of kidney are infiltrated with leucocytes. Many plugs laden with cocci may be seen in the vessels. There is no general blocking of the tubules with fibrin, but locally, here and there, casts may be seen. In these cases there is albuminuria, but the urine is not smoky; there is no edema, and uremic symptoms are rare. Mixed cases may, however, occur. A septic kidney is often seen in cases of malignant endocarditis.

"*Toxic degeneration of the Kidneys.*—Albuminuria is apt to be present in all acute febrile diseases as the result of the action of toxins on the kidneys. In diphtheria there is albumin in the urine by the third or fourth day and not only may large quantities be present, but towards the end of the first week vomiting and suppression of urine may occur accompanied by convulsions and coma. In such cases but little gross change can be found in the kidneys at the *post-mortem.* I have failed to find a true nephritis, but only epithelial degeneration. On one occasion I have seen an acute hemorrhagic nephritis in diphtheria.

"Albuminuria is also present in many cases of acute summer diarrhea in infants, and some controversy has taken place with regard to the frequency of renal complications in these attacks. Holt and, more recently, Morse have carefully investigated the subject, and came to the conclusion that while degenerative changes in the kidneys are constantly found, and that also albumin is of frequent occurrence in the urine, there is nothing to warrant the conclusion that nephritis occurs in these cases except perhaps in rare instances.

ORIGINAL ARTICLES

DIPHTHERIA.*

By J. C. Cook, M.D.,
Chicago, Ill.

DIPHTHERIA, Bretonneau-Klebs-Loeffler's disease, has undoubtedly existed as long as any of the diseases, at least Bretonneau, who first described the disease in 1826, believed it was known in the days of Homer, and probably the angina maligna and gangrenosa and morbus strangulatorius that spread over Italy and Spain in the seventeenth and eighteenth centuries was diphtheria. The Aborigines of America knew nothing of this disease until it was brought to their primitive huts by immigration. It is probable that the first case of diphtheria in this country was in or near Boston in 1835. At Roxbury, Mass., in 1859, three cases occurred and it soon became established throughout New England and spread west to New York in the early sixties, and since has spread throughout the United States.

Professor Klebs was the first to direct attention to the parasitic nature of this disease which had its origin in the growth of a microörganism upon the mucous membrane. In 1872 he made the first culture on fish glue, or isinglass, in a glass tray, by penetrating the mucous membrane of a child that had died with diphtheria, with a sterilized glass rod. Finding many colonies of small bacilli, he repeated his experiment at Prague in 1875, using egg albumin for a culture medium, but found mostly coccus forms at that time. In 1880 Oertel verified his findings at the Congress of International Medicine at Wiesbaden. In 1883 Klebs, who had just studied the epidemic at Zurich, announced that in all diphtheritic cases he found in the membrane a short bacillus not quite as long as the tubercle bacillus but thicker, with swollen, dark-staining ends that showed from two to four spores. It has since developed that what he supposed to be spores have proven to be globules of

* Read before the Chicago Pediatric Society.

chromatic substance and their ability to stain deeper than the granular substance furnishes one of the most characteristic factors of the differentiation of diphtheria. In 1884 Loeffler published his findings, and verified what Klebs had said about finding bacilli in the membrane. He also verified his statement about the absence of bacilli in the internal organs. Little of value was done from that time until 1888 when the study was systematically taken up by both the Germans and the French, resulting in a paper from Behring and Kitasato which marked the beginning of a new era in the heretofore much dreaded disease.

Etiology and Modes of Dissemination.

There are two important etiological factors necessary for the development of this disease. A susceptible animal with a mucous surface prepared either by a catarrhal inflammation or a traumatism, and a reduced system. An animal that is refractory or only slightly susceptible to the disease may be rendered susceptible by an existing acute, subacute, or chronic catarrhal rhinitis, pharyngitis, or laryngitis. Fatigue, renders an animal more susceptible. Martin has shown that a rabbit that has been recently vaccinated against hog cholera will succumb to a quantity of anthrax that would not have affected it before the vaccination.

I assume that you accept without argument that diphtheria is an infectious disease and owes its existence to a microörganism known as the Klebs-Loeffler bacillus and never arises *de novo*. There must always have been a previous case, and it is transmitted from one to another by means of eating and drinking-utensils, by kissing, by chewing-gum and by breathing air contaminated with the living microörganisms. The bacillus has been known to live and grow in cultures made from children's toys 72 days after the death of the child that had played with them during its illness. Two of my cases occurred a few days after handling and exposing clothing that had been in the house during a previous case. In one case the child had died a year and a half previous and there had been no other probable exposure. The second case occurred in the early autumn when heavy clothing was put on that had been in the house in the early spring, when a suspicious sore throat had occurred, for which antitoxin had been given. Holt says: "The disease is epidemic and endemic in large cities most of the time."

Period of Incubation and Onset of the Disease.

The period of incubation has been variously fixed at from one to fourteen days. From a bacteriological point of view it can only be as long as it takes to grow a colony of bacilli. Experience shows that from a small inoculation and a fairly good culture bed a large colony of fully developed bacilli will appear in from eight to twelve hours and deposit their toxins. Chronologically, if we measure the period of incubation from the time of exposure to the date of discovery, it may be from two days to an indefinite period, for there are many cases that are never discovered as they are so mild in character and run such a subacute or chronic course that the first manifestation we may have is the development of disease in another member of the family or an associate. Where there is a known exposure it is our duty to make daily observations and cultures, for there is so much difference in the susceptibility and power of resistance that no definite period can be fixed.

The onset is usually gradual but may appear to be sudden from lack of observation or complaint from the child. The first complaint is usually a sore throat, malaise, headache, slight fever. The average temperature in my cases was 102.5° F. The first local appearance of the disease may be a slight catarrhal inflammation of the pharynx, especially in the laryngeal cases. This may be all that can be seen, and in a very few cases there is no membrane in sight, but usually the appearance varies from a few white or grayish spots on the tonsils to a thick, tenacious membrane, that covers large areas of the pharynx and tonsils. The membrane varies in color from a pearly white to a gray or mouse color and in rare hemorrhagic cases may be almost black. It is composed of fibrin, cells, granular matter and bacteria. If the fibrin predominates in the membrane it retains its form so that perfect casts of the larynx and trachea have been cast off. When the amount of fibrin is small the membrane is soft and friable. It is more closely adherent upon the mucous membranes covered with squamous epithelium, as the pharynx and upper air passages, than upon those covered with columnar and ciliated epithelium, as the lower air passages. Out of 109 cases reported by Holt the tonsils alone were the seat of disease in 27; in 18 cases the pharynx and tonsils were involved, and the rhinopharynx in 18 more cases—or 63 were above the larynx,

while 36 involved the lower and upper air passages; only 10 did not extend above the larynx. Of 1,000 cases reported by Lennox Brown, 84.4 per cent. were above the larynx and only 15 per cent. involved the larynx. Of my own cases only 6 per cent. sufficiently involved the larynx to produce a croupy cough.

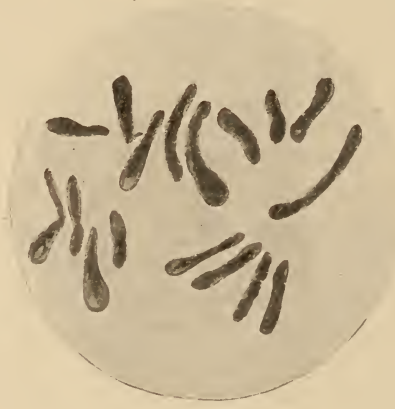
Sex seems to have no influence. Says Holt: "The most susceptible age is between two and five years." Of 14,688 deaths in New York, 1,214 were under one year; 9,622 were under five years; 3,212 between five and ten years; 311 from ten to fifteen years; while there were only 329 of all ages over fifteen.

While there is no question of the primary lesion being on the mucous membrane, the marked degenerative changes in other organs of the body produced either by toxins alone or in combination with other microörganisms, as the streptococcus pyogenes and the pneumococcus, were long ago pointed out by Klebs and Oertel, more recently by Babes, Sydenham, Martin and others.

Diagnosis.

The diagnosis is both clinical and microscopical, and I mention the clinical view first, not because it is of the most importance, but because it is the first observed by the physician. The first complaint is usually of a sore throat and if it be an early inspection, laryngeal or nasal, you will many times only see a catarrhal inflammation of the pharynx and tonsils. In the milder cases you sometimes get simply patches of exudate resembling follicular tonsillitis, and the appearance graduates from this condition to a full grown membrane covering one or both tonsils, the pharynx, uvula, or even large patches on the side of the cheek, and in rare cases the membrane is attached to the lips. If it be laryngeal, you are likely to get a croupy cough. If it be nasal, a sanious discharge from the nose is very likely to be present with hemorrhage, and in all pharyngeal or laryngeal cases of any duration you are very liable to encounter a fetid breath. The glands at the angle of the jaw were enlarged in 99 per cent. of my cases on the first observation, and many times the other lymphatics around the neck and in the sublingual regions are enlarged. In 99 out of 100 cases that I kept a record of tendon reflex was absent in the knee on the first examination.

To differentiate diphtheria from other exudate-diseases of the throat:—in diphtheria you usually deal with a low temperature and a slowly increasing membrane that is quite firmly adherent. In follicular tonsillitis you have a sudden rise of temperature with exudate well distributed over the tonsils, with no tendency to coalesce, easily removed and leaving a small, white surface. In exudative-scarlet fever you must depend upon the temperature, pulse, tongue, nausea and eruption. The early evidence of toxemia as shown by pallor, rapid and sometimes very weak pulse with low temperature, will point to a true diphtheria. In all other forms of exudative-sore throat you deal with a high temperature, full, bounding pulse and frequently a history of previous attacks.



12 Day's growth on saliva containing ½ per cent. of glucose. Starting with 25 c. c. and adding 10 each day.

Bacteriological or Microscopical Diagnosis.

If one reads a few health department reports or depends on a book on bacteriology he may think this part of the diagnosis is simple and accomplished with very few difficulties. Such is not the case, as one may readily see by a study of the literature or by practical work in the laboratory, and yet in uncertain or laryngeal cases we must depend on the microscope to settle the matter. Of 200 cases reported by Martin, diagnosed clinically as diphtheria, 72 showed no Klebs-Loeffler bacilli. I assume, as before, that you accept that the finding of the Klebs-Loeffler bacilli in a given case means it is bacteri-

ological diphtheria, and yet, with this accepted, it is not always easy to make our findings harmonize with the clinical evidence. If we follow closely the findings of modern bacteriologists, we will readily see that the task of the clinician is not an easy one. For instance, there is the typical and the atypical, the true and the pseudo, the pathogenic and the non-pathogenic and many variations in form from the accepted normal in all these varieties. Zeit requires that the five following points be present if we make a diagnosis from a culture and that they can all be brought out on his dog serum media:

From Smear by Zeit.
Verified by culture.

1. A short bacillus swollen at each end with a dot in the swollen portion.

2. A somewhat larger bacillus with a dot at each end and one in the center.

3. A still larger form with a dot at each end and two dots near each other in the center (this makes two forms like Number 1).

4. Either showing a dot in one end or staining entire.

5. The parallel arrangement of one or all of these forms.

Westbrooke, in a recent paper, gave a variety of forms that may be found in a pure culture. May we not find a solution of this and some other questions on this disease in the media on which the bacilli are grown? For instance, Zeit has shown that bacilli can be grown twice as large on a pure dog serum prepared after his method as they can on Loeffler serum

Cook has shown that the morphology is materially changed when the bacillus is grown upon human saliva. Biggs claims two varieties of the pseudo-forms—one that produces an acid reaction, and one that does not, on broth containing glucose. If all this, and more, be true of the morphological changes on different media, may not the pathogenesis be equally affected, and is it not possible on this hypothesis to account for many clinical findings of the disease, as mild cases, partially or wholly autoimmunized cases, etc.?

15 Day's growth on agar-agar bouillon containing ½ per cent. of glucose. Starting with 50 c.c. and adding 10 each day.

Roux and Yersin have found that the pseudo form may be increased in virulence by being grown on suitable media and that their virulence may be lessened by being grown on agar and glycerine, and the temperature at which they grow may also change their virulence. The same authors state that repeated examinations from the throats of convalescent children show a difference in virulence—in favor of the attenuation of the bacillus as the case progresses towards convalescence. It is also stated that the virulence of the attenuated forms may be increased by being inoculated with streptococcus erysipelatos.

Westbrooke examined 263 children and found that in 75 per cent. of these there were diphtheria bacilli either from the throats or nares, and that they were about equally divided between the true and pseudo forms and this when there was no clinical diphtheria present in the neighborhood.

There are two methods of preparing slides for examination, and for convenience I will call them the direct and the indirect methods—the latter being from a culture, while the direct is from a smear taken directly from the throat of the patient. Each of these methods has its advantages and disadvantages. One of the principal advantages of the direct or smear method is brevity. It can be examined at once and save the delay necessary in making a culture, which is important in the severe or advanced cases. The slide is prepared and stained the same as after the culture, and the best specimens will be obtained from the edges or as near the edges as you can secure them. It is not likely you will get a slide of pure Klebs-Loeffler bacilli but probably, if any Klebs-Loeffler, a large number of cocci also: if your slides show all cocci and no Klebs-Loeffler, it is very possible you are dealing with a pneumococcus infection.

The indirect or culture method is by inoculating Loeffler serum or whatever media you choose or have at hand. Experience shows that in from eight to twelve hours is the best time to make your slides for examination. Earlier than this you do not get a sufficient growth, and later, if you have a mixed culture, and most likely you have, you get the development of other bacilli, and the morphological changes in the Klebs-Loeffler bacilli from their own effect on the media on which they are grown. The technique of preparing and examining these slides is so well known that I will not attempt any description.

(*To be concluded in our May 15th issue*).

BLOODLESS TREATMENT OF MUSCULAR TORTICOLLIS IN CHILDREN.

Lorenz (*Wien. Med. Woch.*, January 11, 1902) describes the fine results attained by subcutaneous intentional rupture of the sterno-cleido-mastoid muscle to cure obstinate wry-neck in children. The subject lies with a hard cushion under the shoulders, the head and neck unsupported. The shoulder is drawn down at the same time and it is thus possible to tear the muscle by gradual dehiscence followed by over-correction. Parents accept this operation much more readily than when the knife is used, and the dehiscent fibers heal under the intact skin with little if any cicatricial formation. The cure has been ideal and permanent in all his cases.—*Journal of the A. M. A.*

DIABETES INSIPIDUS.*

By Walter F. Boggess, M.D.,
Louisville, Ky.
Professor of the Principles of Medicine, Clinical Medicine and Pediatrics in the Kentucky School of Medicine.

GENTLEMEN: We show you this morning a very interesting case. The patient is a girl 11 years of age who has had no serious illness, except two years ago, when she had an attack of typhoid fever lasting possibly three or four weeks. Some months after convalescence from the typhoid fever it was noticed that the child was passing a larger quantity of urine than normal. In the last few months this child has been in the habit of drinking from the time it went to bed until its breakfast the following morning, as the nurse expressed it, a 3-gallon pail of water and in addition to that a gallon bucket. It has also been observed by the nurse that the child drinks possibly an equal quantity of water during the day, making all told from 7 to 9 gallons of water consumed in the 24 hours. At this time the child is passing a comparatively like quantity of fluid by the kidneys. This urine upon examination shows a specific gravity of 1001 to 1002, with no albumin, no casts and no evidence of any renal complications. It is a typical case of diabetes insipidus and a most interesting case, too, on account of the large quantity of water consumed and passed by one of this age.

Diabetes insipidus while not a common disease is sufficiently common for us to understand the clinical symptoms. You must always differentiate between diabetes insipidus and the ordinary polyurias as seen in hysterical women and as seen in chronic interstitial nephritis. These polyurias are entirely different from the condition of polyuria that we call diabetes insipidus.

The etiology and pathogenesis of diabetes insipidus is not well understood. We know that heredity plays somewhat of a factor in its etiology, sex showing very little difference; age does not play an important rôle, as about 10 to 20 per cent. of these cases occur in children under ten years of age and the

* Abstract of a clinical lecture delivered at the Hospital of the Kentucky School of Medicine.

other cases most frequently between the ages of twenty and thirty. Just what the condition is that causes this excessive permeability of the kidney we do not know, except that it is a neurosis.

The circulation of the kidney as you know is controlled by the vasoconstrictor and the vasodilator nerve supply. In these cases the vasoconstrictor supply seems to be wanting and turns the capillaries of the kidney over to the dilators thus keeping the capillaries in a dilated and congested condition. This lack of equilibrium between the dilator and constrictor nerve functions is doubtless of cerebral origin, as we can produce both diabetes insipidus and diabetes mellitus by irritation of the spinal bulb and the floor of the fourth ventricle, the region ordinarily described as the diabetic centre. Other than this local diabetic center we know nothing of the true exciting cause except that these cases frequently follow physical, nervous or mental shocks, such as grief, worry, infectious diseases, run-down and lowered vitality, etc.

You will observe in this case that the child is comparatively well nourished. She is a bright, intelligent child, attending the public school, keeping up with her classes, showing no evidence of any marked constitutional dyscrasia. While there is in her case the possible diagnosis of syphilis and a somewhat tubercular history on the part of her mother, yet the physiognomy of the child, her teeth and general expression show no evidence of any specific taint.

The question whether or not you should diminish the quantity of water taken by these patients with the hope that you might lessen the urinary secretion, will present itself to your minds. The history of these cases shows that the polyuria will continue it matters but little how much water you give the patient. If you do not supply water artificially it will be rapidly taken from the blood current and the tissues. You should allow these patients to drink as much water as they choose, for in this way alone can you keep up the proper proportion of liquids in the body.

As to the prognosis: These cases will often get well spontaneously. We know of no specific treatment. They oftentimes last for years and in some instances for a lifetime, with the nutrition of the patient remaining in a most excellent condition. There are cases where treatment seems to have some effect upon their condition. We look upon diabetes insipidus, however, as practically an incurable disease. Of course, if

syphilis is a factor, we should reasonably expect that anti-syphilitic treatment would relieve the patient; but where no positive etiological factor is determinable we can only treat the patient symptomatically.

The remedies that would naturally suggest themselves to us in these cases are those remedies that would have a contracting influence upon the renal capillaries. Such remedies as ergot, digitalis, the bromides, etc., have all been suggested and tried with variable results. The astringents have been suggested and tried, such as tannic and gallic acid, and the various vegetable astringents have been used with but little effect.

In this case and in children as a rule the one remedy that seems to influence the course of the disease more than any other is belladonna. As you well know children stand belladonna wonderfully well, and the drug in these cases should be given for its physiological effects, or to its physiological limit. You must ever keep in mind, however, that there are certain idiosyncracies in children toward belladonna, and if full doses are kept up for quite a length of time it often produces cerebral complications,—secondary disturbances in the brain that show themselves in mania and delusions.

In addition to belladonna I have suggested that this child be put upon fairly large doses of fluid extract of ergot and tincture of digitalis. Digitalis in raising arterial tension should have some influence in contracting the hyperdilated capillaries.

There is one other remedy that I have suggested that can be used in this case, and I think with benefit, and that is arsenic. Just what effect arsenic will have and how it has its effect I am unable to say. I am inclined to believe that arsenic is a remedy that you can use in all such cases as this with great benefit.

I will say this, that under the treatment I have just outlined this child in two weeks has shown rather decided improvement. The urine is possibly a gallon less per day and the amount of water required has been reduced at least 1½ gallons a day. The nutrition of the child also seems to be somewhat improved.

I shall bring this child before you again from time to time during the session and show you what effect we may get from any special line of treatment.

COMPLICATION FOLLOWING REMOVAL OF ADENOIDS.

By E. A. Montenyohl, M.D.,
Akron, Ohio.

RECENTLY I have noticed the reports of various complications following the surgical removal of tonsils and adenoids, and I wish to mention a very unique case which caused me not a little post-operative anxiety. A female child, aged 5 years, suffering from a very aggravated form of enlarged tonsils and adenoids, was operated upon in the usual manner under chloroform narcosis. Nothing unusual was noted about the case until three days following the operation, when characteristic choreic movements were noted to develop in the muscles of the face and rapidly extended to the extremities. The child was extremely nervous and peevish and would cry out at the least excitement and was unable to sleep without hypnotics.

An acute endocarditis ensued and rapidly took on grave manifestations with the fever at 105° F., and respiration 50 for several days. Gradually the symptoms subsided, leaving a chronic heart condition, with the chorea not much benefited. About two months after the acute manifestations the choreic movements disappeared and the child seemed to suffer little except that when she played too hard she would complain of fatigue.

Chorea and acute endocarditis following the removal of adenoids and enlarged tonsils is indeed very interesting and unique from an etiological standpoint. As there was no history of rheumatism in the family I have thought that the complication might have arisen from some sort of infection from the seat of operation. The child did not appear to be frightened before the administration of the anesthetic.

SOCIETY REPORTS

PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, January 14, 1902.

The President, Dr. Thompson S. Westcott, in the chair.

Dr. James H. McKee exhibited a case of **syphilitic dactylitis** and one of **asthma**, apparently due to enlargement of the mediastinal glands. (No discussion).

Dr. A. McAllister reported a case of **tetany**. J. J., a female, aged 5 years, with a good family history, complained in September of stiffness in the muscles of the legs and back. In the early part of October the child was successfully vaccinated; in the latter part of the same month she complained of feeling cold, of pains in the limbs and of vertigo; she was irritable and showed rigidity of the muscles of the legs, arms, back, throat and face. These symptoms became more marked as the disease progressed. The rigidity increased in paroxysms and during a spasm she presented the following train of symptoms:

The hands and elbows were flexed; the upper arm was pressed against the chest; in the lower extremities the toes were slightly flexed; the feet were in the position of talipes equinus; the muscles of the face were contracted, as were those of the trunk; there was slight cyanosis, but no loss of consciousness. Pulse 120; temperature 100 2-5° F. The attacks lasted about five minutes and subsided gradually; slight sweating, pain and stiffness were complained of after each attack. She sometimes had as many as seven paroxysms in 24 hours. She lost consciousness during one attack only. Complete recovery occurred in six weeks.

Dr. Graham, discussing Dr. McAllister's paper, said that the main point was to determine whether the case was one of tetanus or one of tetany; for a number of cases of tetanus following vaccination had appeared about the time that this child became ill. He had entirely agreed with Dr. McAllister in the diagnosis of tetany. Among the circumstances which supported the diagnosis was the history. The child had suffered decidedly from rigidity of the leg muscles some weeks before the vaccination, and decided spasm had not developed until 15

days or more after the vaccination. The latter point is one of especial importance, because the symptoms of tetanus almost always appear earlier than the fourteenth day, and frequently, of course, still earlier. In this case there was no attempt made to use tetanus antitoxin, because, in the first place, the case was not thought to be tetanus, and, in the second place, the case was so chronic and the child was seen so long after the opportunity for infection that the time at which antitoxin is especially indicated had passed.

It is exceedingly difficult to state just what tetany is; certain things, however, are known about its etiology. It occurs in children that have gastrointestinal disturbances; in those that exhibit malnutrition, and not uncommonly, in those that have malaria or that live in malarious regions. In this child all these etiologic factors were found. Hysteria was considered in the case, but the child had no indications of hysteria, either before, during, or after the attacks.

Dr. J. P. Crozer Griffith said that the diagnosis of tetany in the case reported seemed to him somewhat doubtful, although of course those who had seen the patient were naturally more capable of judging than those who had not this advantage. In any event the case was decidedly remarkable and very interesting.

As to the length of time after vaccination being too great to allow of the diagnosis of tetanus, this clearly could not be maintained with positiveness, inasmuch as it was possible for the child to have become infected with the tetanic poison at any time subsequent to the day of vaccination. The description of the case did not sound exactly like that of tetanus, nor did it exactly correspond with that of tetany. There was one symptom mentioned that was certainly very unusual in the latter disease, viz., trismus. A few years ago he had reviewed the literature of the cases reported as tetany which had occurred in America and had found somewhat over 70. There were not, so far as he could recollect, any undoubted cases in which trismus was present. This condition had, however, been reported elsewhere in tetany in rare instances, and its presence in Dr. McAllister's patient was not of course sufficient to exclude the diagnosis although it throws elements of doubt upon it.

There was also another fact worthy of attention, namely, that while there are two forms of tetany—the continuous and the intermittent—which shade into each other to a certain extent and may even be present in the same case, the intermittent form is very much less frequent, and the continuous type is unusual in the adult. The younger the child the more liable is the tetany to assume the continuous type. The child reported tonight appeared to have had chiefly an intermittent spasm; consequently, if tetany, it represented the more unusual form of the disease.

Dr. Graham stated that in looking over Dr. Griffith's article he had found one or two cases in which trismus was noted as present.

Dr. Griffith, in reply to Dr. Graham, stated that although he had abstracted in his article all the cases which were reported as tetany he by no means believed that all of them were undoubtedly such. The cases in his article in which trismus was mentioned seemed to him to have distinct elements of doubt attaching to the diagnosis.

Dr. G. A. Scott showed a case of **congenital heart disease.** The boy, aged 9 years, is of German parentage. The father and mother are living and healthy and there are several healthy brothers and sisters. The child has been cyanosed since birth; he has had no serious illness except a pneumonia, for which he was treated in the Children's Hospital.

At present he is undersized; cyanosis is constant, being especially marked in the lips and finger tips although all the veins are purple and distended; the head is not enlarged; the cranium feels unusually heavy, with the sutures prominent; the fingers and toes present an unusual degree of clubbing; this is not due to any bony enlargement, as shown by the X-ray examination. By percussion, the heart outline extends beyond the right border of the sternum; this is corroborated by fluoroscopic examination of the chest. The visible and palpable impulse is in the fourth interspace, midclavicular line; no thrill is felt over any part of the heart; at no area is a murmur heard; the pulmonic second sound is accentuated; the other sounds are clear and distinct. The liver is slightly enlarged; there is no edema of the extremities. His biood count is interesting—the erythrocytes number 9,400,000; the leukocytes 8,200; the hemoglobin is 117 per cent. The urine is normal chemically and microscopically.

The cardiac lesion present must be accounted for theoretically and not by the physical signs. It has been repeatedly shown that admixture of venous and arterial blood will not produce cyanosis. In this case it is probable that there is an anomalous origin of the aorta, such as both vessels coming from the right ventricle, or there may be but one common ventricle with two auricles.

The lad, too, has in the last seven months become totally blind. Opthalmoscopic examination shows only enormously distended veins; no hemorrhages. His mental condition has also rapidly deteriorated. These symptoms might be due to a hydrocephalus.

Dr. E. E. Graham reported a case of **congenital heart disease** and exhibited the specimens. The child was 1 year

old; it had a good family history, and had good general health up to the sixth month when attacks of cyanosis were first noticed, occurring from two to three times daily to once in two weeks; each attack lasted from 15 to 20 minutes. The child was admitted to the Jefferson College Hospital on November 18, 1901, having suffered on the previous day with an attack of marked cyanosis.

On admission dyspnea was marked, the child was rather fretful, the finger tips and lips were distinctly blue and the pupils were dilated and responded sluggishly to light. There was no retraction of the head nor rigidity of the neck. The heart's action was rapid, as was also the respiration, and there was occasional irregularity of the pulse; respirations 66; pulse 166. No cardiac murmur was detected; the knee-jerks were exaggerated, but no twitching or convulsive movements were noticed while the child was in the hospital. It sank rapidly, and died 24 hours after admission.

The autopsy showed a beginning meningitis of the convexity; the heart disclosed an interventricular septum deficient at the base; a small opening at the foramen ovale was found; there was pulmonary stenosis and a malformation of the origin of the aorta. The arrested development in this case evidently occurred between the eighth and twelfth week of fetal life. At this period the septa between the auricles and ventricles are largely formed and the development of the pulmonary artery and aorta is well advanced.

Dr. J. P. Crozer Griffith, in discussing Dr. Scott's case, stated that he remembered the patient very well as he had used him repeatedly for ward-class instruction at the Children's Hospital. Although unable to say positively that there had not been at any time a murmur audible, he could not recall any. The case had been demonstrated as one of congenital cardiac disease without murmur. The diagnosis made at that time agreed closely with the one which Dr. Scott had advanced, namely, that there was some congenital anomaly in the origin of the great vessels the exact nature of which could not be demonstrated, which allowed the arterial blood to enter, in part at least, the pulmonary artery, thus greatly increasing the tension therein and accounting for the accentuated second sound. The existence of a pulmonary stenosis with the entrance of blood into the pulmonary artery through a patulous ductus arteriosus seemed entirely improbable for the reason, among others, that no murmur was present. The accentuation of the pulmonary second sound which would be accounted for by such a condition must therefore have been produced in some other way, and the theory advanced seemed to be the most probable one.

Dr. J. H. McKee said that while he was a resident physician at Blockley he had seen a case somewhat similar from a pathologic standpoint, in an infant six months old, that died with signs of pneumonia of the apex. The heart exhibited absence of the septum ventriculorum (cor triloculare). The child had been repeatedly examined by a number of physicians of experience and there had been no thought of cardiac disease. There was neither a murmur nor cyanosis, and excepting for the signs of pneumonia for the three days preceding death, the child had appeared as healthy as most of the infants in the foundling ward.

Dr. Graham said that he believed that if the circumstances in his case had been more favorable it might have been possible to detect a murmur, but the child was extremely ill when he first saw it and died within 18 hours thereafter. A physical examination under these circumstances was of course thoroughly unsatisfactory and did not demonstrate that a murmur had previously been entirely absent.

Dr. Scott, in closing, drew attention to the fact that if the aorta arises chiefly from the right ventricle the left ventricle is liable to atrophy more or less completely. It is not improbable that in this case there is more or less complete atrophy of the left ventricle or that there is a single large ventricle due to the absence of the septum. It is an interesting fact that quite a number of these cases have shown quite a marked prolongation of life. He knew of instances in which life had been prolonged to the sixteenth year or even beyond, one such case having been reported by Dr. Griffith, of England; his patient died of pulmonary tuberculosis. The condition of the blood in these cases is also interesting. The count is always found high, that of the reds having been found over 9,000,000. This child has 9,400,000 red and from 3,000 to 4,000 white corpuscles, and 117 per cent. of hemoglobin. The latter has reached even to 165 per cent. (Rokitansky's case). An interesting point in connection with the case is that this child exhibited a very marked degree of arteriosclerosis. The radial artery could be distinctly felt, and the blood pressure was unquestionably high.

Report of the Society's Milk Commission for the Year 1901.

The question of the production of a pure milk in the city of Philadelphia was first considered by this society during the latter part of the year 1898. In December of that year a committee was appointed to consider the advisability of establishing a milk commission. In January, 1899, this committee made a favorable report to the society and at the same meet-

ing a committee was appointed to be be known as the Milk Commission of the Philadelphia Pediatric Society. This commission was authorized to make a careful study of the milk question and to consider the methods used for the production of a good milk in the various cities of the country. Very little information was obtainable from the latter source and the commission was compelled for the most part to originate a standard of its own. This was accomplished as the result of earnest, persistent, conscientious labor on the part of the members of the commission after consultation with bacteriologists, chemists, veterinarians and some of the higher class dairymen.

The dairymen placing themselves under the direction of the commission must comply with the following requirements: The milk is procured once each month for chemical and bacteriological examinations either from the dairy or from the delivery wagons of the producer without previous notice to the dairy. The chemical standard requires that the milk should range from 1029 to 1034 specific gravity; that it should contain not less than from 3.50 to 4.50 per cent. of proteid; from 4 to 5 per cent. of sugar, and not less than 3.50 to 4.50 per cent. fat; that it should be free of all contaminating foreign matter and from all addition of chemical substances or coloring matters. The bacteriological standard requires that the milk be free from pus and injurious germs and not have more than 10,000 germs of any kind or kinds to the c.c. In addition to this a veterinary inspector shall each month, without previous warning to the dairy, inspect the cleanliness of the dairy, the care and cleanliness observed in milking, the care of the various utensils employed, the nature and quantity of the food used and all other matters of a hygienic nature bearing upon the health of the cows and cleanliness of the milk. He shall also see that the cows are free from tuberculosis or any other disease.

The results of the work done by the various dairies under the direction of the commission since its organization have been very satisfactory. During the past year the chemist's reports showed the fat content (estimated by the Leffmann-Beam method) for the various dairies to be as follows (August, September and October not estimated):

	Dairy A.	Dairy B.	Dairy C.
January	4.3	4.30	3.95
February	4.38	4.04	4.04
March	4.21	3.65	4.73
April	4.0	4.12	4.3
May	4.0	4.2	4.0
June	4.4	4.4	4.3
July	4.4	4.1	4.1
November	4.0	4.4	4.2
December	4.45	4.2	4.2

It will be seen from the above that the widest variation from 4 per cent. which was found in any of the milks was 7-10 of 1 per cent. In each of the other dairies the widest variation from 4 per cent was 7-10 of 1 per cent. Therefore the attempt to produce a milk of 4 per cent. fat content has been very successfully accomplished by all of them.

But one of the dairies has been unfortunate enough to fail to meet the requirements as to the condition of their stables, and this failure only ensued as the result of a disastrous fire. Up to that time the condition of the herds and the condition of the stables as to ventilation, heat, floors, troughs, cleanliness, dimensions, etc., were entirely satisfactory.

All of the dairies have had difficulty at some time in the course of the year in producing a milk which should come within the bacteriological limit adopted by the commission, of 10,000 bacteria per c.c. The results of the bacteriological examinations are as follows:

	Dairy A.	Dairy B.	Dairy C.
January	958	3,541	3,083
February	5,875	1st, —12,666 2nd,— 4,541	2,900
March	5,983	3,000	1st, —22,500 2nd,— 4,580
April	1st, —14,291 2nd,— 3,791	3,233	1,541
May	1st, —13,208 2nd,— 7,333	7,625	7,375
June	1,125	1st, —15,250 2nd,—11,666 3rd,— 7,041	8,208
July	3,958	1st, —44,250 2nd,— 6,541	1st, —147,016 2nd,— 9,583
August	3,418	1st, —12,833 2nd,—25,750 3rd,— 2,041	1st, — 22,900 2nd,— 5,791
September	8,666	5,083	6,041
October	8,208	2,041	4,458
November	916	375	7,841
December	1,600	45°	1st, — 25,833 2nd,—100,090 3rd,— 49,669 4th,— 375

It is interesting to note that Dairy A failed to come within the limit of 10,000 in but two examinations and that in one of these instances they were but 4,291 above the limit and in the other 3,208; and while Dairy B has found it necessary to submit to several examinations in the course of the year it should

be noted that only during the month of July did they fail to come within the limit requirement of 30,000 established by the New York Milk Commission and on that instance the count reached only 44,250. Dairy C has had three counts in the course of the year which were above 30,000, and on two instances, July and December, has overrun the 100,000 mark. In one of these instances the unfortunate conditions under which it was necessary to temporarily produce the milk rendered it practically impossible to secure a low bacterial content.

Cuno, after considerable experience with diphtheria antitoxic serum has reached the conclusion that it is useless to await the results of bacteriological investigations before injecting the serum. When intubation is necessary it is his custom to leave the tube in position for 100 hours, and then if it cannot be removed without the development of symptoms of stenosis, tracheotomy is performed. He reports the statistics of 31 children on whom he used intubation, although there were indications for tracheotomy; 21 of these were cured, 8 died and 2 are still in the hospital under treatment. Of these 31 cases, however, 21 subsequently required tracheotomy. In 4 cases the results were unfavorable, that is to say, the children were left with more or less narrowing of the larynx. Two of these cases were readily relieved by sounds; the third subsequently required laryngotomy, and the fourth died at its home from gradually progressive stenosis.—*Phila. Med. Journal*, July 20, 1901.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 20, 1902.

Charles L. Dana, M.D., Vice-President,
in the Chair.

Symposium on Vaccination.—Dr. Alonzo Blauvelt introduced the general subject of the evening by a brief description of "The Action Taken by the New York Health Department on Report of a Case of Smallpox." A diagnostician of the department is at once dispatched to the address given, and the police are asked to detail an officer. If satisfied that the case is probably one of smallpox the diagnostician leaves directions for the disinfecting corps and orders the patient removed to Riverside Hospital either in a coupe or special ambulance. If the latter be sent for, a physician from the hospital accompanies it. The patient is kept under observation if thought necessary for two or three days before being sent to the smallpox hospital on North Brother Island. The vehicle employed for conveying the patient is disinfected with formaldehyde in a special room before being used again. Vaccination is offered to all the remaining occupants of the infected house, and the children are not allowed to attend school for a period of three weeks, but others are allowed to go about their usual business.

Dry Points vs. Glycerinated Virus from a Bacteriological Standpoint.—Dr. M. J. Rosenau, Director of the Hygienic Laboratory of the U.S. Marine Hospital Service, presented this paper. He prefaced his observations by a few remarks on the different kinds of vaccine virus. He said that while there was no doubt as to the superior protective power of humanized virus the danger from infection with syphilis and other diseases attendant upon its use was so great that it had been discarded altogether in some countries. Bovine virus had been suggested as long ago as 1842 but had not come into favor until many years afterward. Glycerinated virus, on the other hand, was a comparatively recent introduction, having been first suggested in 1891. Many were of the opinion that glycerine is a powerful bactericide, but such was not the case. Glycerine only kills bacteria by a slow process of dehydration, which in the case of streptococci requires 11 days and for diphtheria bacilli 20 days. Again, glycerine when diluted was well known to be a good culture medium for bacteria. The glycerine points did not retain their potency so long as dry vaccine points.

Dr. Rosenau then described the bacteriological experiments by which he had sought to compare the advantages and disadvantages of points and glycerinated virus. In the case of the dry points glycerine suspensions had been made. In every instance the samples had been obtained in the open market and well within the time limit as given by the manufacturers, and after three days the colonies were examined and counted. There were altogether 92 samples, representing 8 different manufacturers who were designated only by numbers. There were on an average 4,807 colonies per point in the 41 samples of dry points, and an average of 2,865 colonies per point with the 51 samples of glycerinated virus. Staphylococci, pus cocci and moulds were among the forms of contamination met with, and the figures obtained with the glycerinated virus of some manufacturers showed a ridiculous amount of impurity, particularly when compared with the dry points sent out by the same firms. These figures might be, in part at least, explained by the great variations in the quantity of vaccine contained in the tubes of glycerinated virus. In many instances in which the first examination showed a very large contamination, the same virus when examined after the lapse of a number of weeks showed a very much smaller number of colonies. This meant that the virus when placed on the market was what is known as "green." These results led Dr. Rosenau to the belief that there was need for government control of the manufacture of vaccine.

The Value of the Dry Point as Compared with that of Glycerinated Vaccine Virus.—Dr. F. S. Fielder read this paper. He had studied this subject for some time past, using dry points of private manufacture, dry points charged at the health department laboratory and glycerinated virus prepared by the health department. The dry points prepared by the health department for this investigation were divided into two lots, one lot charged with the serum exuding after curetting away the pulp used for the manufacture of the glycerinated virus, and one lot charged with serum obtained by merely removing the top of the vesicle. No great difference, it may be said, was noted in the action of these two kinds of dry points, but the advantage seemed to be with the points charged with serum after having removed the pulp. There were 14 ivory points supplied by 8 manufacturers. Of the 304 insertions with the health department dry points 25 per cent. were successful, while 60 per cent. of the vaccinations done with the dry points of private manufacture proved successful. There were altogether 571 insertions with dry points from all sources with 33.6 per cent. of successes, and 315 insertions with the glycerinated virus, with 92.9 per cent. successful. The number of good-sized vesicles was decidedly in favor of the glycerinated virus. The points made by charging them with the pulp from

the bottom of the vesicle yielded very variable results, for while the first lot gave 8 insertions with 8 successes, and one or two other lots also yielded good results, another lot from which 22 insertions were made proved an utter failure.

The reader of the paper then took up the constitutional symptoms observed and their relation to the particular virus employed. Of 37 successful vaccinations with the health department ivory points not one showed severe constitutional symptoms. Of the 33 vaccinations with dry points of private manufacture, 1 case exhibited severe constitutional disturbance 3 had marked symptoms and 12 were moderately affected. Of the 31 cases vaccinated with the glycerine virus 2 showed severe symptoms and 6 had marked disturbance, while the reaction was only moderate in 14. The severer reaction from the glycerinated lymph was to be explained partly by the greater number of large vesicles produced and by the fact that in every instance green virus was used.

As to the rapidity of healing, 78 per cent. of the 79 cases vaccinated with the health department ivory points healed promptly, while 66 per cent. of the 162 cases vaccinated with glycerinated virus did the same. Of the cases in which healing was designated as slow there were 8.8 per cent. of the cases vaccinated with the health department ivory points, and 17.2 per cent. of those done with the glycerinated virus. Dr. Fielder said that he was unable to explain why the ivory points of private manufacture had given so much better results than those charged by the health department. He could not say just how long the dry points would retain their potency, but at one time he had investigated this subject for the glycerinated virus of the health department and had found that 100 per cent. of successful vaccinations could be obtained with such virus of an average age of 7.7 months.

Tetanus and Vaccine Virus.—Dr. J. H. Huddleston discussed this subject, giving a brief account of the experiments that he had undertaken in this connection. He began by declaring that no proof had yet been brought forward to show that tetanus had ever been inoculated along with vaccine. The calves used by the health department were fed on sterilized milk after coming to the laboratory in order to eliminate the possible danger of tetanus infection arising from the use of hay as food, but of course these calves had been fed on hay before coming under the care of the department. It was well known that tetanus bacilli were found in horse manure, but as there was no available information concerning calf manure, he had examined the feces of 25 calves who had been fed on hay. By cultures and animal inoculations he was able to detect tetanus infection in only two instances and he had incidentally learned that animal inoculation experiments were not so delicate as cultural tests for the detection of tetanus, though the

viscidity of the glycerinated virus interfered with the cultures. A point worthy of note was that calves appeared to be so insusceptible to tetanus that they were not likely to present any symptoms of this disease even though the vaccine taken from them were actually contaminated with tetanus germs. It was certainly possible to carry tetanus with both bone points and glycerinated virus, though glycerine exhibits a distinct inhibitory influence on the tetanus germs. The author's conclusions were as follows:

1. The feces of calves fed on hay may contain tetanus germs.
2. These germs do not develop with glycerinated virus.
3. Any form of vaccine (dry points or tubes of glycerinated virus) may be infected with tetanus and may convey it.
4. Cultural tests for the presence of tetanus germs are somewhat more delicate than animal tests.
5. Inoculation by scarification is not a favorable method of introducing tetanus.
6. It is probable that the greatest precaution against the production of infected vaccine virus lies in the maximum of cleanliness observed in a vaccine laboratory.

Dr. Frank P. Foster opened the general discussion with the declaration that he was opposed to glycerinated virus. He expressed his pleasure at the thoroughly fair and scientific tone of Dr. Rosenau's paper and condemned the irresponsible and declamatory statements of the present day regarding glycerinated virus which only served to make people careless in its use. It was evident from the strange figures presented by Dr. Rosenau that much of the glycerinated virus in the market falls far short of what it purports to be, and it was equally evident that the ivory points used by Dr. Fielder were exceedingly poor. The results which he secured with the glycerinated virus were such as should have been observed with good dry points. His personal experience would lead him to prefer the vaccine obtained from calves six or eight months old to that produced by younger calves. Dry lymph he knew would not deteriorate in seven or eight months if properly made and carefully preserved, but it was not enough that the lymph should dry spontaneously; it must be dessicated. He was in doubt as to what was meant by the term "pulp." If it referred to a whitish pulpy layer beneath the epidermal portion of the pock he felt that it should be discarded for it appeared to be composed of the necrosed tips of the papillæ of the derma. If, however, the pulp was the living but softened tissue lying more deeply there was no harm in using the lymph which exuded from that structure.

Dr. J. J. Kinyoun said that some years ago he had undertaken some experiments at the hygienic laboratory in regard

to the mode of collecting the lymph. He found that the first portion was quite rich in vaccinal material, whereas the last portion was comparatively weak in this respect. This might explain the dissatisfaction that had arisen from the use of certain makes of dry points. He had been an ardent advocate of glycerinated virus since its first use in 1891 and he could unhesitatingly say now that it is greatly superior to the dry point. He had had an opportunity of inspecting the vaccine institutions in most parts of Europe and the Orient and had been struck with the remarkable success achieved by the Japanese in eradicating smallpox from their country simply by systematic vaccination and revaccination. The glycerinated virus had been found to spoil so rapidly in the Philippines that it was necessary to use it while still green. It certainly produced many very sore arms, and only 60 per cent. of the primary vaccinations were successful.

Dr. Huddleston said that the large number of bacteria found in some of the samples of glycerinated virus examined by Dr. Rosenau could be explained, partly at least, by the fact that as it was practically impossible to make a homogenous vaccine emulsion the tubes would vary considerably in the number of contained vaccine particles and in the number of bacteria. It should be remembered that there must be some solid matter in all good vaccine, for if the serum were filtered through a filter capable of removing all solid matter the filtrate would be found to have lost all power to produce vaccination. The white, pasty material described by Dr. Foster was curetted out and used in the manufacture of glycerinated virus. While both dry points and glycerinated lymph had been known to retain their potency for over two years this did not by any means indicate the practical life of the vaccine when kept under the usual conditions.

Dr. A. Jacobi said that he could not accept the statement that vaccine lymph to be efficient must contain solid matter, because a great many years of clinical experience had demonstrated that it was the clear serum which was to be relied on. Forty or fifty years ago the vaccine used in New York City had been procured by the physician visiting a healthy child eight days after vaccination and taking only the clear serum. This vaccine always proved reliable if the clear serum only were used and if it were drawn just at the right time.

Dr. Rosenau said that the discussion had brought out the fact that many were of the opinion that all dry points were manufactured in the same way, but this was not true. Some manufacturers charge the points with the serum exuding from the old cross-hatch scarifications, while others mix the lymph with glycerine, keep it for some weeks, and then after having

mixed it with normal blood serum use it to charge the bone points. As it was pretty certain that vaccinia is an epithelial infection it should follow that the glycerinated pulp by taking away the epithelial layer contains the maximum of vaccinal bodies.

Dr. HUDDLESTON said that he had seen in London the arm-to-arm vaccination described by Dr. Jacobi, but would call attention to the fact that although the serum appeared perfectly clear it contained the vaccinal bodies. It had been shown time and again that if these bodies and all other solid matter, no matter how minute, were separated from the serum the latter would be inert.

Treatment of Tetanus by Baccelli's Method.

The question of rheumatism and other etiological factors in the induction of tetanus in which infection cannot be traced to an external wound is discussed by E. Cioffi (*La Riforma Medica*, Jan. 20–22, 1902). The author believes that rheumatic tetanus cannot be considered a separate pathological entity, but that all cases are due to infection with the bacilli of Nicolaier, and that exposure to cold, dampness, etc., is but a predisposing cause. In individuals in whom no external wound is visible, infection is to be attributed to the presence of the specific bacilli in the mouth, nose, bronchi, or intestines. Statistics of treatment by tetanus antitoxin are quoted, showing a mortality of from 50 to 80 per cent.; contrasted to this, Baccelli's method of treatment by hypodermic injection of carbolic acid has given brilliant results, the mortality being estimated at from 12 to 30 per cent. The dose should never be less than 1 centigram to the kilogram of body weight; 3 grams have been administered daily without any ill effect.—*Med. News.*

PRACTICAL NOTES

The Administration of Quinine to Children.

The following prescriptions are cited by the *Revue médicale* for October 9, 1901, from an analytical article by Dr. Lemanski in the *Bulletin de l'hôpital du Tunis*:

Petzold gives quinine in honey dissolved in acidulated water:

℞ Quinine sulphate.....10 grains
Acidulated water.....75 minims
White honey.....600 grains
M.
A coffeespoonful every two or three hours.

Crépuy's prescription:

℞ Distilled water.....600 minims
Extract of licorice.....45 grains
Quinine hydrochloride.....4½ grains
M.

A child usually makes no difficulty in swallowing the whole of this at one time.

A recent number of the *Klinische therapeutische Wochenschrift* gave the following:

℞ Quinine sulphate.....60 grains
Citric acid, Syrup, Syrup of bitter orange peel, of each 150 "
Distilled water.....300 minims
M.

Ten drops of this mixture are given in an ounce and a half of water, to which are added 45 grains of sodium bicarbonate. The mixture is drunk while effervescing.

Saccharine may also be used advantageously to mask the taste of quinine.

Dr. Lemankis himself prefers the rectal method of administration. The suppository is better tolerated than the enema and causes no smarting or defecation.

℞ Quinine salt....from 1½ to 7½ grains
(according to age).
Cacao butter.....from 15 to 45 grains
Virgin wax.....q.s.
M. ft. suppositorium.

In some cases cacao butter may be replaced by glycerin solidified by the addition of gelatin. Two suppositories daily are to be inserted without regard to the thermometrical exacerbation, the object being to saturate the economy with the drug for a sufficiently long time to combat the paludism.—*New York Medical Journal.*

Granular Conjunctivitis.

℞ Copper sulphate.....1 grn.
Salicylic acid.....2 grn.
Cocaine hydrochlor.....2 grn.
White petrolatum.....2½dr.

Apply at night; wash off in the morning carefully with a warm solution of borax.—*Merck's Archives.*

Prescription for the Itch.

Dr. C. E. Boynton reports the case of a young man who, having just recovered from an extensive scald of the arm, caught the itch. Colonies extended in all directions, and soon the young man suffered misery. About one application of the following ointment cured him, but he declared he was nearly frozen by the menthol:

℞ Menthol..... 40 grn.
Ichthyol.....4 dr.
Calcium sulphide.....1 dr.
Sulphur.....6 dr.
Wool-fat,
Olive oil, sufficient of each to make 3 oz.

Apply as required.—*Merck's Archives.*

For Oxyurides.

Médecine orientale for March 10th ascribes the following to Delamare:

℞ Mercurial ointment.....1½ grain
Benzoated lard } of each.....7½ grains
White wax, }
Cacao butter.....30 "

M.—For one suppository.—*Med. Rec.*

For Ascarides.

Progrès médical for February 1st attributes the following formula to Comby:

℞ Santonica, } of each.....30 grains
Corsican moss, }
Calomel.....3 "

M.

Divide into two powders and give one in the morning for two days.

It also ascribes this to Smith, of Moscow:

℞ Santonin.....3 grains
Oil of sweet almonds.....2 ounces
Tincture of santonica.....4 drops

M.—A tablespoonful twice daily.—*Med. Rec.*

ABSTRACTS

A CASE OF GANGRENE IN A NEW-BORN CHILD.

E. B. Bronson (*Jour. of Cutaneous and Genito-Urinary Diseases*, December, 1901) reported this case: Helen R., age 4 days, was admitted to the Babies' Hospital on March 14, 1901. The child was well formed, well nourished, bearing the appearance of perfect health, except for certain gangrenous lesions that involved portions of the right side of the head, neck, shoulder and hand. The mother was about 35 years of age, of good health, and had had two previous children, aged 5 and 7 years respectively, both appearing perfectly healthy, and had had one miscarriage. Concerning the birth of Helen, from statements made by the mother and by the attending physician, the following data were gleaned: The labor lasted for about 20 hours. Some three hours before birth all pains ceased and when delivery took place it was sudden and unexpected. The physician was not present and did not arrive till a half hour or more after the birth. The mother states that a female friend who came in to assist her, on being requested to see that the cord was all right, told the mother that it was wound twice around the neck.

The fourth day after its birth the child was brought to the Babies' Hospital, in New York, where the following notes were made:

There is a black,leathery patch on the right side of the face,involving cheek, ear, neck and extending down upon the shoulder. There is also a small patch on the outer side of the right hand. The patch on the cheek is depressed and the surface glazed and dry; the color is a greenish-black; at the margin is a slight red areola, scarcely ¼ inch wide, with very little infiltration or inflammation, and in some parts the areola is entirely absent. Where the affection seems to be advancing there is, first, a discoloration of the skin, of a very dark-brownish color and slight elevation of the cuticle by serous exudation. Later the patch turns much darker and dries up. There is no discharge or moisture anywhere. The entire ear is involved and is shriveled and mummified in appearance. The part of the cheek that is involved is uneven as though warped and depressed below the surrounding surface nearly ¼ inch, due apparently to desiccation of the necrosed tissues. It extends along the zygomatic arch, from a point a little outside the outer angle of the eye backward, in a curved line that runs above the top of the ear and descends ¾ inch behind the ear, down to about the junction of the neck with the shoulder and forward along the ramus of the jaw as far as the chin and within an inch of its median line. The anterior border is about 2 inches from the nose. The transverse measurement of the patch just below the ear is 3½ inches, the vertical measurement 3 inches. On the neck an isthmus of nearly healthy skin about ½ inch wide separates the patch on the cheek from another similar patch over the right clavicle. This is elliptical in shape, 1½ inches

long by 1 inch wide and is surrounded by some areola. The patch on the hand involves the base of the thumb on its dorsal aspect and extends along the radial border of the hand and the forefinger quite to the finger tip. The process everywhere seems to be a superficial one and is characterized by a steadily advancing necrosis. In all other respects the baby has the appearance of a perfectly normal child, plump and well nourished. There was no lesions of the skin other than those mentioned, and none in the mouth.

With regard to the degree of extension of the disease process after the patient was admitted to the hospital there was a little uncertainty. Apparently it did extend slightly in places, but very soon it reached its limit, and the day after admission the line of demarkation was pretty distinct, and in the next few days the slough began to separate, as represented in the accompanying portrait, made three days after admission. By the tenth day the slough had entirely separated, leaving healthy granulating surfaces which within three weeks had quite healed. Toward the last the child's digestion suffered somewhat and it looked a little wan.

The chief interest in this case concerns the etiology. Was it a pressure gangrene, a gangrene due to carbolic acid or lysol, or was it an effect produced by some interior condition concerning the nerves or blood vessels? Against pressure as the cause must be considered the peculiar locations of the lesions and the fact that a sufficient degree of pressure (no instruments having been used) to produce such effects in the child

would not have been apt to leave the mother's parts intact. But apparently the mother had not suffered in any unusual way and her recovery was rapid. A week after the birth she was up, attending to her household duties.

It was suggested that the gangrenous spots, in many of their features, resembled effects sometimes produced by applications of carbolic acid. The latter have been occasionally observed after strong applications to fingers, especially when made for felons, but have also been noted elsewhere, and sometimes even after comparatively mild solutions. But in this case it is pretty certain that no carbolic acid was used.

Improper method of carrying a child.

Proper method of carrying a child.

CARRYING THE BABY.

The child should always be lifted with both hands, held lightly but firmly, the entire length of the back and the head being carefully supported. One of the most common and dangerous errors is leaving the back or the head unsupported. When this is done the movements of the body of the mother or nurse in walking, or indeed, the sudden lurching of the baby itself, may seriously affect the head and spine.—*Health Culture*.

IMPACTED CALCULUS IN THE URETHRA IN CHILDREN.

John H. Jopson (*Am. Jour. Med. Sci.*, January, 1901) says: Vesical calculus in children, although infrequent in this country, is not of such rarity as to occasion comment when encountered. The accident of impaction in the urethra is a sequel of more unusual occurrence, and having met with two such cases within a few months at the Children's Hospital has led him to make a report of them, with some remarks upon the diagnosis and treatment.

Holmes, in his "Surgical Treatment of the Diseases of Infancy and

Childhood," published many years ago, says that when summoned to a case of retention in a child we can almost always assume it to be due to impacted calculus. It may, when overlooked, easily lead to perineal abscess as well as to extravasation. Even the passage of the catheter may not detect its presence.

The removal of an impacted calculus in children is, from the small size of the urethra, more difficult than in adults. If situated near the meatus, or anywhere in the penile urethra, it can sometimes be seized with fine forceps after a preliminary meatotomy and removed. In the deep urethra attempts have been made to push it backward into the bladder, where it can be treated by litholapaxy. Failing these attempts, the urethra must be promptly opened. When the urethra is already ruptured no time should be lost, and urethrotomy and drainage of the infiltrated tissues at once proceeded with. Judging from our experience it will usually be found necessary to leave an English catheter in the perineal opening for several days, as some swelling of the parts is to be expected, and the presence of a raw surface over which the urine must flow also probably excites a reflex spasm of the sphincter.

NOTES ON SOME DISEASES OF THE KIDNEY AND BLADDER IN INFANCY.

John Lovett Morse (*Am. Med.*, April 5, 1902) says that acute pyelitis and pyelonephritis occur not infrequently in infancy. A short time ago two of eighteen babies in his service at the Infants' Hospital were suffering from them. They may be primary, or develop in the course of other diseases. The secondary form is the more common. The type may be mild or severe, the mild being much the more usual. They are seldom due to ascending infection from the bladder. The secondary form occurs most often in diseases of the intestine. Both mild and severe types are usually due to infection by *bacillus coli communis*. The diagnosis can only be made by the examination of the urine. It is important moreover to remember that in these diseases the character of the urine may vary from day to day or from hour to hour, at times being normal and at others not. A single negative examination is not sufficient, therefore, to exclude them. The symptoms seem often to point to the gastroenteric tract as the seat of trouble. Constipation is more common than diarrhea. The temperature is irregular, often resembling that of intermittent fever. In a case of Holt's there were numerous chills. The prognosis is generally good. The following case is very characteristic:

Cystitis may be either primary or secondary. Primary cystitis is decidedly uncommon and is usually not of a severe type. Secondary cystitis is very common and occurs in a great variety of serious diseases. It, too, is generally mild in type, but may be severe. It is seldom the result of the extension of a vulvovaginitis or urethritis upward. Both forms are almost always due to the colon bacillus. The most usual source of infection is probably in the rectum, but in little girls with short urethras, direct contamination from the feces may take place. Severe ascending infections involving the kidneys are very unusual (Hutinel, Finkelstein).

The symptoms of the primary form are fever, restlessness and colicky pains. The symptoms are easily misinterpreted and the real condition not suspected. The diagnosis can only be made by the examination of the urine. The symptoms of the secondary form are presumably the same. They are usually masked, however, by those of the primary disease and pass unnoticed. The urine is usually acid in both forms.

ECZEMA IN INFANCY.

Malcolm Morris (*Am. Med.*, Nov. 16, 1901) says: Eczema presents certain diversities of character according to the age of the patient, and it will be well to pass the more important of these in rapid review. In infancy the focus from which an eczema of the scalp starts is generally a patch of dried sebaceous matter. Such a patch, dirty brown in color and consisting of greasy material, may be seen soon after birth and it is too often treated as of no account. This is a great mistake, for if care be taken to treat this seborrhea in the very earliest stage, I believe that a large part of the eczema which causes so much suffering and disfigurement in children would be prevented. Care must, however, be taken not to treat it too vigorously, as in the highly vascular scalp of an infant the slightest irritation may convert a trivial condition into an acute, rapidly-spreading eczema. Many mothers and nurses display too much zeal in the use of soap and water. I do not, as you may have gathered, believe that these substances have such an irritant effect on the adult integument as Professor Neisser teaches, but the skin of the infant is very tender and resents the slightest roughness in handling. I think it would be well if medical practitioners made a point of warning nurses as to the danger of overscrubbing. Washing should be done gently, and if soap is used it should be superfatted.

Next I would advise that if there appears to be any tendency to irritability of the scalp the child should not wear a cap in the house and its head should not be too warmly covered when it is taken out. If in spite of all precautions eczema develops, it will spread in the form of circular patches, not only on the scalp but also on the face. Thence it will come down the front of the chest and it may pass behind the ears and so down the neck, and in that way a collar may be formed round the neck. Next patches may appear upon the abdomen and the back and subsequently on the limbs. After a time the disease suddenly assumes an acute character passing from the first dry red stage into an exudative stage with discharge. In young children eczema tends to become pustular. In a few days the discharge will dry and form crusts, and then the typical condition of eczema of the infant will be met with, with thick crusts all over the scalp and face and scattered about the body. In the later stages there is a considerable amount of irritation. Many mothers tie the infant's hands or wrap them in bags to prevent them scratching themselves. This is wrong and indeed a cruel thing to do. It must be our endeavor so to modify the process that we can give the child relief without putting it to that extra torture. The local treatment should be of the very simplest and gentlest character; strong ointments or lotions are altogether out of

place. There is no better application than a very weak sulphur ointment —5 grains of precipitated sulphur to 1 ounce of benzoated lard.

What is it that converts the simple patchy dry form of eczema into an acute process? The change is often attributed to improper feeding, but I have seen eczemas commence and go through their various phases and relapse though the child has been in every way properly fed, when it has been taking its mother's milk and the mother is in good health. As the child gets older there are factors which unquestionably have an influence. The first of these is vaccination. The usual rule with vaccination officers is that they are not to vaccinate a child who has eczema. The chief reason is that the vaccination will not take if there is a discharging surface. On the other hand, if vaccination is done when there are only circular scaly patches of the seborrheic type the vaccinia as it comes to its height will sometimes arouse these patches into a state of violent inflammation. Other zymotic diseases act in the same way. It is not uncommon for a child with scaly dry patches to have them suddenly aroused into activity by an attack of measles. The presence of intestinal worms may also arouse an infantile eczema into the greatest activity. In acute eczema a small dose of calomel given at bedtime and repeated in two or three nights is the best constitutional remedy. As regards local treatment, a powder to dry up the discharge should be applied composed of 1 part of finely triturated boric acid and 1 part of starch, and perhaps 1 part of oxid of zinc. Afterward "zinc cream," consisting of 7 drams of oxid of zinc, 1 dram of lanolin, 1 ounce of olive oil and 1 ounce of limewater, should be applied to check as far as possible the formation of scabs. This form of eczema, like all others, is cyclic in its nature. It starts, comes to its height and subsides, but the tendency of the condition is to commence again; and in spite of all internal or local treatment some cases go on relapsing again and again, and I do not know of any method of treatment by which cases of this kind can be certainly cured. Fortunately the proportion of these is exceedingly small. I believe that individuals may be saved from becoming eczematous subjects in later life if sufficient care with regard to the conditions in infancy and in childhood be observed.

In later childhood eczema is also usually of the seborrheic type. It usually begins with the formation of circular or oval patches of a rough and scaly character upon the cheeks or forehead. These patches are usually regarded as being of no consequence but they should on no account be neglected. At this age the question occurs whether a child who is liable to repeated attacks of eczema of this character should be sent away to school. I have seen disastrous results follow sending children with a marked tendency to relapses of eczema away to school, and in my opinion such children are far better treated at home, If an eczema of early life has left behind it enlarged glands and if there is a tuberculous history in the family it is in some instances wise to send the child to the seaside. But if the attacks are extremely acute it certainly is not advisable to send the child to the sea.

ACUTE FATTY DEGENERATION OF THE LIVER.

LISTER (*Scottish Med. and Surg. Jour.*, July, 1901) reports the case of girl, aged 6 years, who was suddenly taken ill with slight jaundice, severe vomiting, pain, hemorrhages, fits, coma and death; the whole illness lasting only 12 days. The liver was felt to be enlarged throughout and leucin was found in the urine. Post-mortem the liver was found to be considerably enlarged. It was in an advanced stage of fatty degeneration, fragments floating readily in water. When cut the surface was of a canary-yellow color. There was also an increase in the connective-tissue elements of the interlobular tissue. The author considers that the condition was due to the entrance of some poison into the system, and one naturally thinks of phosphorus, but no history could be obtained of there being the least probability of the child having taken phosphorus in any form; further, the urine showed no trace of this poison and no sign of it was found in the liver. It was possibly a case of acute yeliow atrophy, but the fact that the liver remained enlarged throughout is against this diagnosis.—*Australasian Med. Gaz.*

A NEW METHOD OF DISTINGUISHING HUMAN BLOOD FROM THAT OF ANIMALS.

C. TARCHETTI (*Gaz. degli Osped.*, May 19, 1901) describes a new procedure for this purpose: If into an animal (A) the blood of a different species (B) is injected, then after a certain time the blood of the animal(A) is found to be toxic towards blood of the species (B). Thus, by repeated injections into rabbits of human blood—10 c.cm. on four or five occasions at intervals of about a week—Uhlenhuth and Wassermann, got from the blood of the rabbit a serum which exhibits hemotoxic powers to human blood, not only in a fresh state, but also when dried and redissolved in normal saline solution. Ape's blood was the only other one which behaved like human blood. Wassermann and Schultze proceed thus. Dissolve the spot of blood to be examined in a little normal saline solution; filter; place 4 or 5 c.cm. in two small test-tubes, to one of which (*a*) add 0.5 c.cm. of rabbit's blood made hemotoxic as above; to the other (*b*) add 0.5 c.cm. of normal rabbit's blood. A third control-tube (*c*) may be made with 4 or 5 c.cm. of solution of the blood of any animal save ape or man in distilled water. Place the solutions in a thermometer at 37° C.; if the spot of blood be human, in an hour's time the tube (*a*) will show a turbidity or a floculent precipitate, while (*b*) and (*c*) will be perfectly limpid. Tarchetti carried out similar experiments with human blood and that of animals, both fresh and dried, for more than two months on cloth, wool and knife blades, and found the method reliable. The reaction occurs almost as well at the air temperature as at 37° C. The solutions must be absolutely clear to begin with, and he finds distilled water better for this purpose than normal saline fluid, for it brings all the hemoglobin out of the corpuscles. He has found that the diagnosis can be at once made with the greatest certainty in a hanging drop under the microscope; a slight uniform precipitate is at once formed, and in a few minutes is seen

as islets united in a reticulate pattern much resembling the arrangement of Ebert's bacillus agglutinated by typhoid serum. The same thing is observed in filtered aqueous solutions of dried blood. It is only after a long time (12 to 24 hours) that a similar appearance is seen in blood of other animals.—*Charlotte Med. Jour.*

REPORT OF A SUCCESSFUL CASE OF SPINA BIFIDA.

L. Freeman (*Jour. A. M. A.*, March 22, 1902) says: Baby H., seven weeks old, healthy, well developed and without deformity other than spina bifida. A translucent tumor the size of a goose-egg existed in the lumbo-sacral region. The sessile sac, not larger than the end of a thumb at birth, had steadily increased in size until the integument had become translucent and as thin as tissue paper, threatening rupture at any time; in fact, a slight leakage had already taken place.

Under chloroform, in August, 1901, an elliptical incision was carried around the tumor near its base, and the sac, which was intimately adherent to the attenuated skin, was opened at once. The elongated conus was freed from its central attachment to the sac and replaced, together with some nerve filaments within the opening which just admitted the point of a finger. The sac was then cut away near its base, the neck freed from its attachments to the edge of the cavity and stuffed into the opening onto the cord. The aperture was then whipped over with No. 27 silver wire, the soft parts and skin being brought together with deep silkworm-gut sutures. The wound was sealed with collodion and supported as well as possible with a compress and bandage. The further progress of the case was uneventful and led to satisfactory recovery. In spite of primary union taking place there was some rise in temperature, as has been frequently noticed by others.

Although the immediate result was everything that could be desired, the ultimate fate of the child is yet to be determined. That the tumor itself will recur is extremely unlikely, but it is a fact that many such cases finally succumb to hydrocephalus.

PEDIATRICS

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EDITORIAL COMMENTS

Litten's Sign as an Aid in the Diagnosis of Thoracic Disease

It is now some ten years since this interesting phenomenon was first called to the attention of medical men. It has stood the test of time as being under certain circumstances of unquestionable clinical worth.—To elicit it the patient should be upon his back, with the thoracic muscles relaxed,—arms at the sides and knees somewhat elevated. As a rule the feet should be directed *towards* the source of light. This rule is not invariable, for the sign, if well-marked, can be seen when sufficient light is present from whatever direction; it may be even noticed occasionally when the patient is standing. But for the great majority of cases the posture mentioned is the only suitable one. The best light is bright daylight, though a good lamp held over the knees sometimes serves equally well.—The patient is directed to take a deep breath. As the diaphragm descends in inspiration and the diaphragmatic pleura separates from the thoracic pleura, a horizontal wave (i.e. horizontal to the patient when erect) descends along the thorax from the sixth or seventh to about the tenth or eleventh rib, returning (though less perceptibly) as the diaphragm returns. The phenomenon is often more marked on the right side, but if visible on the right it should also be visible normally on the left.

When the sign is positive, the indications are generally speaking, two: first, that the pleuræ are not adherent; second, that the lung is expanding normally. The former fact excludes chronic pleurisy with adhesions, and also pleurisy with effusion; the latter excludes all diseases of the lung substance proper which would obstruct its expansion,—e.g., acute lobar pneumonia, chronic fibroid pneumonia and advanced emphysema. In moderate emphysema the "shadow" will be restricted in its movement but not absent, except over the anterior half of the thoracic outlet.

The limitations of the value of Litten's sign are rather grave, unfortunately, but not grave enough to prevent its being often of substantial value. A bad light makes it impossible to see it. A stupid or unconscious patient, or a small baby cannot be made to breathe properly. Acute pleurodynia or intercostal neuralgia will make the patient often *unable* to breathe. The thoracic breathing of women often obscures the sign, the diaphragm in such cases moving imperfectly or not at all. Ascites, tympanites, a large adherent liver, or a large neoplasm in the abdomen will mechanically prevent the descent of the midriff. Counting out these exceptions, the sign will be found worthy of confidence. In insurance examinations it ought to be made one of the stock questions, as candidates for insurance are, presumably, healthy and intelligent men. In normal boys and girls it is rare to find it absent, and old pleurisies can often be discovered thus in a moment. B.

A New Way for Physicians to Make Money

The following letter was recently received by a New York physician,—apparently a circular,—of which this was but one:

"*Dear Sir.*—On the 15th day of August, 1901, we paid —— —— —— $700 for being instrumental in sending to us a claim for damages by —— ——, injured while coupling cars. We got his case in December, 1900; tried it in February, 1901,

and, though an appeal was taken, we collected the amount of the verdict, $7,000, in August, 1901.

"We beg leave to call your attention to these facts for the reason that we believe you could also reach and influence persons who have good claims for damages for personal injuries. We cite this instance to show you, so far as we can by letter, that we always show our substantial appreciation of such favors from physicians and others. We invite inquiry as to our capacity and reliability. For upwards of twelve years we have been handling claims arising from negligence. We have met with success in a large proportion of such cases in court and made a large number of settlements out of court to the satisfaction of our clients.

"Accidents are always isolated and it is the exception, rather than the rule, that we, our clients, or our friends are acquainted with injured persons. We can, therefore, reach them only with difficulty. But your opportunities are superior in every way and we want you to co-operate with us, thereby doing good to the injured people and also, in many instances, securing your fee, and beside, satisfactory remuneration for your efforts and favors in our behalf. We do not ask you to appear in court. Sincerely yours,

_____."

We have frequently heard that there were lawyers in New York who would stoop to such means as this for gain. This is our first intimate personal knowledge of it. We feel assured that there are few physicians who would care to make such a bargain. B.

ORIGINAL ARTICLES

DIPHTHERIA.*

By J. C. Cook, M.D.,
Chicago, Ill.

(*Continued from May 1st issue*).

Treatment.

AFTER one has satisfied himself, either clinically or bacteriologically, that he is dealing with diphtheria it is his duty to administer diphtheritic antitoxin. The quantity and frequency of repetition is not sufficiently settled so that one can lay down definite rules at present. I was not obliged to administer more than two doses to but 3 per cent. of my cases; only 2 per cent. received more than three doses and only 1 per cent. more than four doses. No case received over five doses—with 99 per cent. of recovery. Not as much depends on the quantity as on the strength. Large quantities of low potency give an unnecessary discomfort. Only 3 per cent. received more than 20 c.c.; only 2 per cent. received 40 c.c.; and only 1 per cent. over 40 c.c. The largest amount any patient received was 100 c.c. of 15 units; the smallest dose was 20 c.c. of 1,000 units.

If the antitoxin treatment has wrought these results,—and it has, for those of us whose period of labor dates back of the early 90's knew diphtheria as a very different and less tractable disease than my figures would represent—it is not too early to inquire something about its action and whether it is an antitoxin from a strictly chemical point of view. And this brings us to the subject of sero-therapy. It is said by a sage in our profession that therapy has more distinctly marked the epochs in the history of medicine than any other part of the science. Sero-therapy is so intimately interwoven with immunity that what we have to say of it will be under that head and for con-

* Read before the Chicago Pediatric Society.

venience of expression I will divide it into three heads or subdivisions—natural immunity, naturally acquired immunity and artificially acquired immunity. Natural immunity is the inherent power to resist disease, possessed to a very much greater degree by some animals than others. This power may be increased or diminished by accidental or artificial means. As illustrative of this we all know the resisting power possessed by the white rat to anthrax, the negro to yellow fever and the Japanese to scarlatina. The naturally acquired is where one has come in contact with and had the disease. This might also be called kindred immunity. While not as constant as natural

24 Hours' growth on blood serum.
Pathogenic.

immunity it is more constant than artificially acquired or alien immunity, probably from two causes: first, it is well known that artificially acquired immunity from kindred serum is much more lasting than the same degree of immunity acquired from alien serum; second, in all probability the heat element present in naturally acquired immunity plays a much more important role than has been accredited to it. Possibly some such change takes place in the cell tissue as does in iron when long baked and made into steel, its power of resistance being greatly increased thereby—a crystallization, as it were; but the artificially acquired is the form of immunity that most interests us at present. According to F. Ranson this can be transmitted from parent to offspring. Says Ranson: "The foal at eight hours after birth from an immunized mother

whom it had nursed but little had an antitoxin value of 1 to 20 of the mother. The value, however, soon changed to 1 to 10, then 1 to 6 and remained steady for a time. At this time the antitoxin value of the mother's milk was 1 to 40; later this changed to the disadvantage of the milk until it stood 1, foal serum 30, mother's serum 500. When the treatment of the mare was recommenced the antitoxin increased in her serum and milk but did not in the colt's, notwithstanding he was still nursing but was also eating—aged four months."

To show the relative value of kindred and alien serum, two calves were treated at the same time with the same doses, one with a cow serum and the other with a horse serum. The blood showed about the same antitoxin value on the tenth day

48 Hours' growth on blood serum.
Non-pathogenic.

after treatment was discontinued, but on the thirty-fifth day the loss of the one immunized with horse serum was seventeen times greater than the one's treated with kindred serum. This experiment was repeated on the same calves with the same results, excepting greater loss to the one treated with the horse serum.

The Nature of the Action of Antitoxin.

According to Louis Cobbett, in 1890 when Behring and Kitasato reported their experiments it was believed that the toxin and antitoxin had a chemical affinity for one another. In

1893 Behring compared the action of the two substances to acid and alkali—as harmless bicarbonate of soda and harmful hydrochloric acid. H. Buchner was the first to oppose this chemical action, declaring that because two things mixed did not produce any effect it was no evidence that there had been a chemical union and a neutral non-noxious product produced, and made some experiments himself and was convinced that both the toxin and antitoxin acted upon the animal and that no destruction of one by the other took place either in the test tube or animal, and that the terms antitoxin and curative serum were not proper ones; that the action of antitoxin was to immunize the tissues unaffected. The question was: Can we neutralize the poison in the body or must we be content

48 Hours' growth on blood serum.
Pathogenic.

with immunizing the unaffected cells? Therefore one could not properly speak of curative serum. He (Buchner) believed antitoxin was a bacterial product not differing very greatly from the toxin or toxalbumin, and its action was on the cell-tissue in opposing the toxin. Roux also believed antitoxin to be a bacterial product, but differed from Buchner, in that he thought that its action was by stimulating the living cells to destroying the toxin. Behring pointed out in 1893 that the presence of antitoxin in the body of immunized animals was not the sole cause of their acquiring immunity, for the amount of antitoxin in the serum of an animal might diminish while its resistance actually increased. Behring, to settle the ques-

tion of chemical union of antitoxin and toxin, made a series of experiments. He mixed toxin and antitoxin in sufficient quantities and gave it to a mouse; that produced no effect, but the same dose of the same mixture given to a guinea-pig produced evidence of toxemia, it being a more susceptible animal. He therefore concluded that the toxin and antitoxin remained side by side in the mixture. It has been found by experiment that a dose of the mixture of toxin and antitoxin that produce no effect when injected into the cellular tissue produces marked toxemia when injected into the vein. Wasserman showed by his heat experiments that the two substances lay side by side in the mixture and that antitoxin was destroyed by 100° C. and that toxin was not affected, both in and out of combination, and that the substance which neutralizes the toxin is only set free and acts on the toxin after it has been injected into the animal organism. It therefore requires the intermediate living tissue. Martin has shown by his experiments that toxin could be separated by means of a Chamberlain filter. Suitable pressure forced the toxin through the porcelain but left the antitoxin behind. It would appear from all these evidences that artificially acquired or passive immunity is best and easiest secured and maintained by kindred serum where it is possible, and where it is not an isopathic one should be used.

It appears to the writer that the most philosophical and physiological conclusions are that the product is of animal origin and its action is that of a stimulant rather than that of an antidote, especially if we consider at all Metchnikoff's phagocytal theory, but, according to Ernst, his deductions were not as valuable as his findings. The humoral theory, championed by Buchner and others, does not seem to have any settled important points.

The sequelæ and complications of diphtheria under the serum treatment have undergone as marked changes as the disease itself. It is stated that diphtheritic paralysis has greatly increased since the use of antitoxin. F. Ranson says that this is more apparent than real, and attributes the appearance to the fact that a number of cases now seen formerly succumbed to the disease and were never in evidence as cases of paralysis. To prove the truth or falsity of this statement he made many experiments on diphtheritic paralysis. Says he: "Paralysis may be expected after intoxication with a fourth of a fatal dose of diphtheritic toxin, and with doses between a quarter and

eighth it occurs. The larger the dose the surer the paralysis, if the animal lives. Antitoxin given 15 to 20 hours after the inoculation exercises a modifying influence on the paralysis. The author thinks that the greatest benefit is exercised over general paralysis, as heart failure, rather than over local, as paralysis of the soft palate. Diphtheritic toxin seems to produce two distinctive varieties of paralysis—a local, affecting the soft palate, nose, eyes and larynx, while the other is a general, and may affect the whole body, commencing with the lower limbs. It is reasonable to suppose that the former is due to primary peripheral neuritis, while the latter depends, in man and other animals, on a primary myelitis with secondary neuritis. Katz examined three cases, five and six years old, that died of diphtheritic paralysis, and in all these cases the anterior cornual cells were found partly necrotic and partly exhibiting fatty degeneration. In peripheral nerves destruction of the axis cylinder was observed and special note was made that the phrenic nerve was involved. In a series of examinations of the spinal cord of guinea-pigs which died in from one to three weeks after injections of cultures of diphtheria, it was found that the anterior cornual cells were always affected. The nerve fibers were also degenerated. It has also been found that the amount of paralysis depends upon the dosage. Where toxin and antitoxin were given simultaneously changes only occurred where the toxin was in excess. It has also been found that if the toxin was administered in advance of the antitoxin its effect on the cord varied with the interval between the administration of the poison and the remedy. Thomas in 1898 gave the following conclusions after examining 25 fatal cases: First, the marked parenchymatous degeneration of the peripheral nerves is an ordinary condition, and that it is occasionally associated with hyperemia, hemorrhage and interstitial changes; second, that in the brain and spinal cord acute, diffused, parenchymatous degeneration occurs in the fibers; third, that degenerative conditions are present in the heart muscle,—sometimes one may find hypermia infiltrates and hemorrhages into the brain and spinal cord, but that these conditions are rarely severe enough to leave permanent effects; fourth, that sudden death during the disease or convalescence results from the action of this toxin on the nervous apparatus of the heart.

Professor Woodhead, at the British Medical Association, reported 7,832 cases of certified diphtheria. Of these cases, 1,362 suffered from paralysis, and of these 1,096 had been treated with antitoxin. Primary paralysis of the pharynx occurred in 185. Out of 497 cases the eye-muscles were affected in 197. The muscles other than the eye were affected in 10 cases and the heart in 102 cases. The palatal cases occurred mostly between the fifth and fifteenth days, the ocular between the fourth and seventh, the cardiac between the fifth and tenth and the other muscular between the tenth and fifteenth. But few occurred as early as the second day, and in one case as late as the fifty-ninth day. Says Ranney: "One cannot help thinking that we may have evidence of the primary effect on the nerve cells or direct action of the poison on the muscular tissues from the fact that cardiac paralysis occurs relatively at a so much earlier period than other paralysis." Says Ranson: "In diphtheritic paralysis the changes in the cells probably antecede nerve changes in the majority of cases."

Nephritis, like multiple neuritis, owes its existence to a toxin or toxalbumin—a product of diphtheria, and this form of nephritis does not sufficiently differ from nephritis of other toxic diseases to merit special consideration here. Twenty-four per cent. of my cases showed albumin; 5 per cent., casts, and all have recovered, so far as I know, with one exception. No. 96, whose attack was ushered in with a spasm, was one of four cases that did not show early evidence of paralysis. He did not show any until the second week after convalescence, and he had more paralysis after that than any other case. He now has chronic nephritis with albumin and casts.

Of the 100 cases I wish to present, the average temperature was 102.6° F.; the pulse 105; 24 out of the 100 cases showed albumin and 5 of these casts. In 74 cases I had mixed culture, 26 pure culture; 82 of the cases were primary, or the first cases in the families and the remaining 18 were secondary; 4 per cent. developed urticaria, 5 marked erythema, 2 of which covered the entire body; 99 per cent. showed glandular enlargement at the angle of the jaw on the first examination; 6 per cent. had marked laryngeal stenosis. No case required intubation; 99 per cent. recovered. The one that did not recover died from profound exhaustion and toxemia 360 hours after the first dose of antitoxin was given and 264 hours after the last dose was given.

Discussion.

Dr. Walker.—Such a painstaking paper as Dr. Cook has presented is certainly very interesting; he is to be congratulated upon the presentation of his cases. What occurred to me in reading his tables as being especially interesting and being the first tabulated record of the kind that I have seen, is his record of the condition of the reflexes. In a number of cases that I have seen I have examined very carefully for the reflexes and have with few exceptions found them wanting. I have asked any number of men who have seen great numbers of cases of diphtheria and nearly always met with the answer that they had not taken them or were uncertain about what their findings were. I notice in Dr. Cook's record that in 95 per cent., or about that, the deep reflexes were involved. That is very interesting and very important, I think, because cases of diphtheria pass out of the hands of the attending physician. I have often seen instances of an error being made, the post-diphtheritic paralysis being mistaken for some other nervous trouble. Now this loss of knee-jerk is very hard to follow and would be very instructive. It is persistent for months some times. Of course Dr. Cook could not follow this out, but if he could it would make his records much more valuable and interesting.

What I always like to speak of in regard to diphtheria is, that in diphtheritic cases it is every physician's duty to make careful and repeated examinations for pathogenic germs before discharging the patient. It is not done as a rule, but it is every man's duty to himself and his patient and the community.

Dr. Geo. Cook.—Dr. Walker in making his remarks spoke about examining for pathogenic germs before discharging the patient. That, I think, is a very important feature. Where antitoxin has been administered I believe that the microörganism becomes attenuated and in the course of four or five weeks is non-pathogenic, and it is necessary to isolate the germ, which would require a great amount of time. However, it would be an important thing for the community, it seems to me.

One thing has interested me more,—of course not being a practitioner, all I have done is in a bacteriological way—there are only two factors that may be taken into consideration, that

is, the susceptibility of the individual and the virulency of the exciting cause, which is the microörganism in diphtheria. I have taken great interest in this, perhaps because I have had plenty of cultures. The changing of the virulency of the germs is to me one of the very interesting things. It has been found by Westbrooke and Hill, of Boston, and others, that these germs are easily changed to a non-pathogenic state, while on the other hand, there has not been much done in the way of trying to render them again pathogenic. Whether they are again rendered pathogenic is a question that has not been settled. Some say they can be rendered pathogenic after being non-pathogenic without being cultivated with other microorganisms, such as the streptococcus of erysipelas. I have tried to render them pathogenic again by various methods of cultivation. I succeeded in getting a more toxic condition, but the guinea-pig lived two or three days and recovered. For instance, I got that symptom after I had used bouillon, each day starting the culture in bouillon until I brought it up to 1 liter, and I believe that if cultivations and inoculations and inoculations were followed on that line it wound certainly reveal some very interesting facts.

What seems to me of special interest in diphtheria, in regard to the microörganisms growing in the oral cavity is the change of saliva. What brings about the change that may change them to a non-pathogenic state? According to some of the works on bacteriology one would be led to believe that it is due to change of the solutions. I have made some experiments by which I hope to find out whether or not this is true.

Dr. Cook.—In reply to Dr. Walker, I have always used the knee-jerk as one of the diagnostic features in uncertain cases. If it is uncertain and the deep reflexes are not affected at all, especially if there is a history of three, or four, or five days' sore throat, I feel moderately certain that it is not diphtheritic in character. On the other hand, if there is a slight sore throat, a sanious discharge from the nose, or hemorrhage, with the reflex gone, I think I would conclude that it was diphtheria, more likely than anything else. I agree with Dr. Walker that following these cases up to see how long this exists is of interest, and am doing so where I can keep track of the children, and I may have something of value to report on that later.

In reference to the pathogenic bacteria growing less pathogenic, I take it that that is the acquired immunity and the secretions in the saliva act as a mirror, as it were, of the condition of the rest of the body;—that it is immunity and they grow less pathogenic from living in their own toxins. What Dr. Walker said about the repeated examinations is true. It should be followed up but is not done. It is left undone by so many that the few who attempt to do it are criticised. It is considered a financial affair, and other physicians make deleterious remarks about it. Where I have been able to do so I have, but have neglected it in most cases for want of time and perhaps inclination. However, in some families where I am well acquainted I have followed the matter up and found not especially different conditions from what Westbrooke and others have reported,—that the bacteria become less virulent as the disease progresses toward recovery.

No.	Name.	Age. Sex.	Temp. Deg. F. Pulse.	Location of Membrane.	Duration of Disease.	Reflexes.	Microscopical Findings.	Urinary Findings.	Condition of Lymphatics and Skin.	Amount and Strength of Antitoxin.	Condition in 24 Hours. Deg. F.	Result.
1	M. K.	4 yrs. 6 ms. F.	103.4 98	Both tonsils & uvula	36 hrs.	Absent in both knees	K. L. and mixed	oo	No eruption; glands enlarged	20 c.c. No. 1500	Temp. 99 throat clear	Recovery
2	J. O'R.	7 M.	100 94	Both tonsils	24 hrs.	Absent in left knee; diminished in right knee	K. L. and mixed	Trace of Albumin; no casts	Erythema at point of puncture; glands enlarged	20 c.c. No. 1500	Temp. 100; membr'n not changed	Recovery in 5 days
3	H. F.	11 M.	104 120	Soft palate, uvula & both tonsils	24 hrs.	Present but diminished in both	K.L. with grippe bacilli	Albumin and casts	Glands only at angle of jaw; no eruption	20 c.c. No. 1500	Temp. 99 pulse 100	Throat clear in 36 hours recovery
4	M. G.	10 F.	102 105	Right tonsil	48 hrs.	No reflex in either knee	K. L. and mixed	Trace of Albumin no casts	No eruption; lymphatics enlarged	20 c.c. No. 2000	Temp. 99 pulse 100	Recovery in 5 days
5	F. J.	13 M.	104.6 105	Both tonsils	12 hrs.	Absent	K. L.; second culture	oo	Lymphatics enlarged at angle of jaw	20 c.c. No. 1500	Temp. 101 pulse 95	Recovery in 4 days
6	J. McC.	4 M.	100 98	Small spot on left tonsil	8 hrs.	Diminished in right knee; normal in left knee	K.L. from smear	oo	Enlarged at angle of jaw only	20 c.c. No. 1000	Temp. 101 pulse 90	Recovery; thrt clear in 24 hrs.
7	N.K.P.	26 M.	104 130	One spot in roof of mouth and left tonsil	12 hrs.	Absent in both knees	K. L. and mixed culture	oo	Erythema at point of puncture; spots all over body; glands enlarged	20 c.c. No. 1500	Temp. 104; erythema still out; itching intense; indigestion	Recovery after 8 days
8	N.K.P.	46 M.	99 185	Right tonsil	4 hrs.	Intact	K.L. from smear	oo	No eruption; glands enlarged	20 c.c. No. 2000	Temp. 98 throat clear	Recovery
9	A. A.	3.6 F.	105 160	Pharynx, tonsil and larynx; croup	4 days	Absent in both knees	K.L. and streptococcus	Albumin and casts.	Pallid; enlarged	20 c.c. No. 1500	Temp. 102 pulse 100	Recovery in 4 days
10	C. B.	5 F.	100 80	Right tonsil	24 hrs.	Absent in both knees	K.L. from smear	oo	Glands slightly enlgd at angle of jaw	20 c.c. No. 1500	Temp. 99; throat almost clear	Recovery
11	B. D.	12 F.	102 112	Both tonsils in patches	3 days	Absent in both knees	1st three ex. only strep. & grip bac. 4th culture K.L.	oo	No eruption; enlargement at angle of jaw	20 c.c. No. 1000	Temp. 101 throat clearing	"
12	H.R.	3.6 M.	103 110	Post-pharyngeal and post-nasal	4 days	Absent in both knees	K. L. from smear	oo	No eruption; lymphatics enlarged	20 c.c. No. 1500	Temp. 102 much the same	"
13	A.McD	14 M.	103.6 108	Spots over the tonsils	5 days of sore thrt	Impaired in both knees.	K. L. and streptococcus	A trace of albumin; no casts	No eruption; enlarg'd at angle of jaw	20 c.c. No. 1500	Temp. 100 throat clearing	"
14	W. H.	5 M.	104 ...	Both tonsils, pharynx and larynx; croup	7 days of sore thrt	Absent in both knees	"	Albumin; no casts	No eruption; cervical glands enlarged	20 c.c. No. 1000	Temp. 102; croup is better; membranes disappearing	"
15	C. H.	13 F.	103.4 103	Right tonsil	12 hrs.	Absent in right knee only	K.L. from smear	oo	Urticaria following injection; glands enlarged	20 c.c. No. 1500	Temp. 99 throat clear	"
16	Mrs. H.	38 F.	104 120	Both tonsils	6 hrs.	Impaired	"	oo	Marked urticaria aft'r injection; glands enlarged	20 c.c. No. 2000	Temp. 101; membranes disappearng	"

17	H. F.	13 F.	102 97	Both tonsils	36 hrs	Absent in both knees	K. L. and streptococcus	oo	No eruption; glands enlarged	20 c.c. No. 1500	Temp. 99; throat clearing	Recovery
18	R. B.	8.6 M.	105 115	Both tonsils and posterior nasal space.	48 hrs	" " "	K. L.	No albumn some casts	No eruption; cervical glands enlarged	"	Temp. 98.6	Recovery after 4 days
19	F. L.	9 F.	101 95	Left tonsil	48 hrs	" " "	K.L. by smear	oo	Slight erythema at point of puncture; glands enlarged	"	Temp. 99; throat clear	Recovery
20	W. H.	5 M.	105 140	Larynx and whole pharynx covered	5 days	" " "	K.L. from smear	Albumin and casts	Cervical glands & at angle of jaw enlrgd	"	Temp. 105; breathed better	"
21	N. H.	11 F.	102 95	Both tonsils	24 hrs	Absent in left knee only	" " "	Trace of albumin	Glands enlarged at angle of jaw	"	Temp. 100. throat clearing	"
22	C. H.	13 M.	104 100	Right tonsil & uvula	12 hrs	Not affected.	" " "	oo	Glands enlarged on affected side	"	Temp. 99; throat clearing	"
23	K. H.	7 F.	102 100	Small patch on one tonsil & post-nares	12 to 24 hrs	Absent in both knees	" " "	oo	Urticaria following injection; glands enlarged	20 c.c. No. 1000	Temp. 100, slight general improvement	"
24	C. J.	4 M.	101 110	Both tonsils and postr pharyngeal wall	3 days	" " "	K.L. and mixed	A trace of albumin for one day	No eruption; lymphatics enlarged	"	Improved	"
25	C. O.	12.6 F.	100 85	Both tonsils covered	Sore thrt for 24 hrs	Not affected.	K.L. on third culture	oo	Glands enlarged at angle of jaw	20 c.c. No. 1500	"	"
26	H.W.	3.4 M.	102.6 100	Posterior nares	24 hrs	Absent in both knees	K.L. and streptococcus	No examination	Glands enlarged; erythema	20 c.c. No. 1000	Temp. 101; nose bleeding badly	"
27	J. B.	9 M.	104 100	Right tonsil and right cheek	36 hrs	Impaired.	K.L. from smear	oo	Glands enlarged at angle of jaw	20 c.c. N. 1500	Temp. 99; greatly improved	"
28	M. F.	5 F.	103 97	Both tonsils covered	36 hrs	Absent in both knees	K.L. and mixed in 2nd culture	No albumn no casts	Cervical glands and glands at angle of jaw enlarged	"	Temp. 101; improved	"
29	H. C.	11.6 F.	103.6 110	Left tonsil covered	2 hrs	Diminished in both knees	K.L. from smear	"	Erythema for 6 inches around point of infection; glands enl'd	"	Temp. 103; uncomfortable	"
30	C. H.	4.6 M.	104 120	Posterior nares	4 days	Absent	K.L. and mixed	A trace of albumin no casts	Cervical glands enlarged	"	Temp. 100; improved	"
31	H.W.	5 M.	102.6 90	Post-pharyngeal spce one tonsil and uvula	24 hrs	Absent in left knee; impaired in right knee	K.L. from smear	oo	Lymphatic glands enlarged all over body	20 c.c. No. 1000	Temp. 101; slight improvement	"
32	H. F.	14 M.	102.4 96	Both tonsils	3 days sore thrt	Absent in both knees	K.L. and mixed	A trace of albumin	Glands enlarged at angle of jaw	20 c.c. No. 1500	Comfortable	"
33	W. J.	2.6 M.	100 120	Larynx	12 hrs	Present, but diminished	K.L. the 4th culture	co	Slight enlargement in cervical region	"	Temp. 100; breathing better	"
34	J. H.	9 M.	105 140	Both tonsils	4 or 5 days	Absent in both knees	K.L. and mixed	Albumin: a few casts; hematuria	Lymphatics enlarged in cervical region	20 c.c. No. 1000	Temp. 104; throat better	"

No.	Name.	Age. Sex.	Temp. Deg. F. Pulse.	Location of Membrane.	Duration of Disease.	Reflexes.	Microscopical Findings.	Urinary Findings.	Condition of Lymphatics and Skin.	Amount and Strength of Antitoxin	Deg. F. Condition in 24 Hours.	Result.
35	E. R.	14 F.	102 90	Patches on one tonsil	24 hrs	Not impaired	K.L. and unknown	No albumn no casts	Lymphatics at angle of jaw	20 c.c. No. 1500	Temp. 99 Throat clear	Recovery
36	G. A.	43 M.	103 100	Uvula and one tonsil	12 to 24 hrs	Absent	K.L.	oo	General enlargement of lymphatics	20 c.c. No. 1000	Temp. 101 Throat clear	"
37	M. H.	4 M.	100 96	Posterior nares and larynx	One week	"	K.L. mixed	Trace of albumin	No eruption; slight enlargement	20 c.c. No. 1500	Temp. 99 Slight improvement	"
38	A. J.	3 M.	105 100	Both tonsils	24 hrs	Impairefl	K.L. from smear		Erythema around p't of puncture; glands enlarged	20 c.c. No. 1000	Temp. 100 Much improved	"
39	M. A.	7.6 F.	104 140	One tonsil and uvula	36 hrs	"	K.L. and mixed		Glands enlarged at angle of jaw	20 c.c. No. 1500	Improved	"
40	H. H.	10 M.	101 100	Spots over both tonsils	48 hrs	Absent in both knees	K.L.		Glands enlarged in cervical region	"	Temp. 100 Slight improvem'nt	"
41	H. W.	5 F.	103.4 100	Post-pharyngeal spce and one tonsil	2 days	Absent in one knee and impaired in the other	K.L. and streptococcus	Trace of albumin	Erythema for 12 hrs; enlarged glands at angle of jaw	"	Temp. 102 Marked improvem't	"
42	L. B.	14 F.	101 89	Both tonsils	36 hrs	Absent in both knees	K.L.		Very slight enlrgmnt of cervical glands	"	Temp. 99 Improved	"
43	R. P.	6 M.	104.6 100	Right tonsil and right nares	3 days	" " "	"		Marked enlargement of cervical glands	"	Temp. 102 Slight improvem'nt	"
44	H. I.	4.6 M.	105 140	Whole pharynx covered	48 to 52 hrs	Absent	K.L. from smear		Enlarged cervical glands	"	Temp. 110 Marked improvem't	"
45	M. I.	7 F.	102 110	One tonsil	6 hrs	Not impaired	" "		Enl'rged cervical gls. on affected side	"	Temp. 98 Throat clear	"
46	A. R.	2.6 F.	102.4 90	One tonsil and larynx; croup	About 4 days	Absent	K.L. and mixed	Albumin and casts	Cervical glands markedly enlarged	"	Slight improvemn't	Recovery in 5 days
47	H. W.	13 F.	103 100	Both tonsils	24 hrs	"	K.L. Health Department	oo	Glands enlarged at angle of jaw	"	Improved	Recovery
48	G. L.	12 M.	102.6 96	One tonsil only	"	"	K.L. and streptococcus	oo	Erythema at point of infection; glands enlarged	"	"	"
49	T. K.	11.6 F.	104 110	Both tonsils	12 to 24 hrs	"	K.L.	oo	Cervical glands enlarged	"	Temp. 100 Marked improvem't	"
50	B. J.	4 F.	103 110	Roof of mouth, uvula and one tonsil	36 hrs	"	"	oo	Marked enlargement at angle of jaw	20 c.c. No. 1000	Temp. 100 Slight general improvement	"
51	W. W.	10 M.	103.6 110	Both tonsils	12 hrs	"	K.L. Health Department	oo	Slight enlargement at angle of jaw	20 c.c. No. 1500	Marked improvem't	"

52	E. J.	7 F.	103 100	One tonsil	24 hrs	Absent	K.L. from smear	oo	Cervical glands enlarged	20 c.c. No.1500	Marked improvem't	Recovery
53	H. E.	12 F.	101 97	Spots over both tonsils	4 days	"	K.L. and streptococcus	A trace of albumin; no casts	Marked enlargement of glands	"	Slight improvem'nt	"
54	F. J	5.7 F.	102 99	Both tonsils about half covered	2 days	"	K.L.	oo	Slight urticaria; gl'ds enlarged	"	Improved	"
55	E. J.	3.6 F.	101 120	Posterior nares and larynx	24 hrs	Impaired	"	oo	Glands enlarged at angle of jaw	"	Very slight improvement	"
56	C. F.	9.6 F.	104 110	Right tonsil & cheek	12 hrs	Very slight response in one knee	K.L. from smear	oo	Slight enlargement at angle of jaw	"	Temp. 100 Much improved	Recovery in 2 days
57	H. D.	9 M.	103 100	Right tonsil and right nares	36 hrs	Absent	K.L.	oo	Cervical glands enlarged	"	Temp. 100 Improved	Recovery
58	C. F.	13 M.	104 120	Both tonsils	24 hrs	"	"	oo	Enlarged glands at angle of jaw	20 c.c. No.2000	Temp. 99 Much improved	"
69	F. K.	11 M.	102 90	Small spot on one tonsil	12 hrs	Slightly impaired	"	oo	Glands at angle of jaw enlarged	20 c.c. No.1500	Improved	"
60	H. R.	8 M.	103 98	One tonsil covered	24 hrs	Absent	"	oo	Glands enlarged in cervical region	"	Slight improvement	"
61	J. P.	6 M.	100 92	Small patches all over throat	12 to 24 hrs	Impaired	"	oo	Cervical glands enlarged	"	Improved	"
62	R. P.	8.6 M.	102 96	Both tonsils	36 hrs	Absent	"	None	Enlarged at angle of jaw	"	"	"
63	M. A.	7 F.	103.6 115	One tonsil and uvula	24 hrs	"	"	"	Cervical glands enlarged; no eruption	"	Temp. 99 Greatly improved	"
64	P. F.	3.6 M.	101 100	Both tonsils spotted like follicular tonsillitis	36 hrs	"	"	A trace of albumin	Cervical glands enlarged	20 c.c. No.1000	Temp. 102 Slight improvement	"
65	J. H.	11 F.	104 140	Both tonsils covered; also uvula	24 hrs	"	K.L. from smear	oo	Marked erythema around point of injection; glands enlarged	20 c.c. No.2000	Temp. 100 Marked improvem't	"
66	W. S.	9 M.	102 95	One tonsil and spot on pharynx	12 hrs	"	K.L.	oo	Slight enlargement of cervical glands	20 c.c. No.1500	Temp. 101 Slight improvement	"
67	H. P.	4.6 M.	102 100	Both tonsils covered	24 hrs	"	"	oo	Marked enlargement at angle of jaw	20 c.c. No.1000	Improved	"
68	A. R.	4 F.	100 95	Small patches on tonsil and pharynx	3 days	"	"	oo	All the cervical glnds enlarged	"	Temp. 100 Slight improvement	"
69	G. D.	11 F.	104 115	Both tonsils covered	24 hrs	"	"	oo	Only glands at angle of jaw enlarged	20 c.c. No.1500	Temp. 100 Marked improvem't	"
70	C. J.	11 F.	103 100	One small patch on one tonsil	18 hrs	"	"	oo	Glands enlarged only on affected side	"	Temp. 101 Improved	"

No.	Name.	Age. Sex.	Temp. Deg.F. Pulse.	Location of Membrane	Duration of Disease.	Reflexes.	Microscopical Findings.	Urinary Findings.	Condition of Lymphatics and Skin.	Amount and Strength of Antitoxin	Deg. F. Condition in 24 Hours.	Result.
71	H. O.	5 M.	102 96	One tonsil only	12 hrs	Absent	K.L. from smear	oo	Glands at angle of jaw enlarged	20 c.c. No.1500	Marked improvem't	Recovery
72	H. S.	9 F.	104 90	Both tonsils	24 hrs	"	K.L.	oo	Lymphatic glands enlarged	"	Temp. 100 Improved	"
73	H. F.	3 M.	103.6 110	Both tonsils and pharynx	"	"	"	oo	Glands enlarged; slight urticaria	"	Temp. 101 Improved	"
74	M. A.	11 F.	102 95	One tonsil and uvula	18 hrs	"	"	oo	Glands enlarged	"	Marked improvem't	"
75	W. J.	4.6 M.	103 100	Small patches over both tonsils	24 hrs	"	"	oo	Enlarged glands at angle of jaw	20 c.c. No.1000	Temp. 101 Slight improvem'nt	"
76	F. S.	12 F.	101 95	Patch the size of silver dollar on one tonsil	12 hrs	Impaired	"	oo	All cervical glands enlarged	20 c.c. No.1500	Temp. 99 Improved	"
77	G.W.	11 M.	102 90	Small patch on both tonsils	12 18 18 hrs	Absent	"	oo	Lymphatics enlarged at angle of jaw	"	"	"
78	C. H.	3 F.	103 105	Both tonsils covered	24 hrs	"	"	oo	Slight erythema around point of puncture; marked enlargement of lympatics	20 c.c. No.1000	Temp. 99 Much improved	"
79	A. S.	14 F.	103 100	One tonsil covered & patches on the other	36 hrs	"	"	oo	Lymphatics enlarged at angle of jaw	20 c.c. No.1500	Temp. 101 Improved	"
80	A. F.	3.6 F.	102 96	Both tonsils	24 hrs	"	"	oo	Lymphatics enlarged at angle of jaw	"	Temp. 99 Improved	"
81	L. J.	11 M.	103 100	One tonsil and post-pharyngeal space	36 hrs	"	"	oo	Cervical glands enlarged at angle of jaw	"	Temp. 100 Improved	"
82	M.W.	6.6 F.	103.6 95	One tonsil and uvula	12 hrs	"	"	A trace of albumin; no casts	Enlarged at angle of jaw and cervical	"	Temp. 101 Marked improvem't	"
83	H. C.	13 M.	104 110-115	Both tonsils	24 hrs	"	"	oo	Glands enlarged at angle of jaw	20 c.c. No.2000	Temp. 101 Improved	"
84	F. J.	9 F.	102 100	One tonsil only	18 hrs	"	"	oo	Enlarged at angle of jaw and anterior cervical	20 c.c. No.1500	Improved	"
85	M. H.	3.6 F.	103 95	Both tonsils	24 hrs	"	"	oo	Cervical glands and at angle of jaw	20 c.c. No.1000	Marked improvem't	"
86	A. B.	5 F.	101 85	Small patches on both tonsils	36 to 40 hrs	"	"	A trace of albumin; no casts	Cervical glands enlgd also at angle of jaw	"	Slight improvem'nt	"
87	F. F.	4 M.	103.6 110	One tonsil covered & patches on the other	18 hrs	Absent in one knee	"	oo	Enlargeu at angle of jaw	20 c.c. No.1500	Temp. 100 Improved	"

88	E. P.	14 F.	104 100	Both tonsils covered	24 hrs	Absent	K.L.	oo	All cervical glands & at angle of jaw	20 c.c. No.1500	Temp. 101 Improved	Recovery	
89	H. B.	8 M.	103 140	Both tonsils	"	There	K.L. Pure culture	oo	Skin not affected; marked enlargement	"	103.6	Death	Death occurred just 365 hours after the first dose of antitoxin was given. There were in all five doses given, 100 c.c., 1500 each. Membrane all disappeared in 192 hours.
			104° 150 105° 150	Whole pharynx covered	48 hrs 52 hrs	was no evidence	No culture K.L. from smear	oo	Glands at angle of jaw very much enlarged	"			
			104.6° 160 103° 150	Membrane extended to roof of mouth	72 hrs 96 hrs	of paralysis other	No culture	oo	Has a cataleptic appearance	" "			
			101° 161 97° 165	Membrane beginning to disappear	120 hrs 144 hrs	than the	"	oo	Glands still very mch enlarged; still cataleptic appearance	" "			
			103° 145 102° 150	Very few patches on throat	168 hrs 192 hrs	absence of	"	oo	Swelling disappearng	oo			
			104° 145 102° Rc. 160	Throat clear as to membranes	216 hrs 240 hrs	the knee-jerk which	"	oo		oo			
			102.6° 170 104° 170	Very dry and cracking	264 hrs 288 hrs	was present	"	oo		oo			
			102° 156 103° 160		312 hrs 336 hrs	on the first	"	oo		oo			
			105 180		360 hrs	day.	"	oo		oo			
90	M. B.	6 F.	102 90	Both tonsils	24 hrs	Absent	K.L. Pure culture	oo	Slight erythema at point of puncture; cervical glands enlarged	20 c.c. No.1500	Improved	Recovery	
91	M. M.	16 F.	104 110	Both tonsils and posterior pharynx	36 hrs	"	K.L. and mixed	oo	Glands at angle of jaw enlarged	20 c.c. No.2000	Slight improvem'nt	"	
92	F. F.	11 F.	104 140	Tonsils, pharynx and larynx; croup	48 hrs	"	K.L.	A trace of albumin; no casts	Marked enlargement	20 c.c. No.1500 "	Very slight improvement	"	
93	M. B.	4 F.	102 130	Larynx; few spots cn one tonsil; croup	36 hrs	"	K.L. and mixed	oo	Slight enlargement	"	Very little improvement	"	

There was never any albumin or casts.

No	Name.	Age. Sex.	Temp. Pulse.	Location of Membrane.	Duration of Disease.	Reflexes.	Microscopical Findings.	Urinary Findings.	Condition of Lymphatics and Skin.	Amount and Strength of Antitoxin	Deg. F. Condition in 24 hours.	Result.
94	Mrs. B*	38 F.	100 95	One tonsil	12 hrs	Absent in one knee	K.L. pure	oo	oo	20 c.c. No.2000	Very much improved	Recovery
95	W. B.	5 M.	101 96	Nares	10 days	Absent	K.L. 5th culture	A trace of albumin	Cervical glands enlarged	20 c.c. No.1000	Improved	"
96	W. W.	5 M.	105 160	Tonsil, pharynx and whole mouth	5 days	Present till after general paralysis had begun	K.L. from smear	Marked albumin	Marked enlargement	20 c.c. No.2000 20 c.c. No.1500	No improvement	"
97	Mrs. W	24 F.	102 95	One tonsil	12 hrs	Absent	"	oo	Slight enlargement at angle of jaw	20 c.c. No.2000	Improved	"
98	M. W.	3.6 F.	100 100	Patches on both tonsils	"	"	"	oo	Slight enlargement at angle of jaw	20 c.c. No 1000	"	"
99	H.W.	5 M.	103 110	Both tonsils and pharynx	4 days	"	K.L. and mixed	Albumin	No eruption; glands enlarged	20 c.c. No.1500	"	"
100	C. W.	3.6 F.	100 98	One tonsil	12 hrs	"	K.L. from smear	oo	Lymphatic glands enlarged	20 c.c. No.1000	"	"

Average Temperature. Average Pulse.	Per cent. of Cases without Albumin.	Per cent. of Cases with Albumin.	Per cent. of Pure Culture.	Per cent. of Mixed Culture.	Per cent. of Primary Cases.	Per cent. of Secondary Cases.	Per cent. of Cases. with Croup.	Per cent. with Lymphatic Enlargement.	Per cent. of Absent or Impaired Reflexes.	Per cent. Recovered.
102.6 105	76	24	26	74	82	18	6	99	99	99

SOCIETY REPORTS

PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, February 11, 1902.

The President, Dr. Samuel Mc C. Hamill, in the Chair.

Doctor J. H. W. Rhein exhibited a convalescent case of "**habit tic**" in a child 2 years and 3 months of age. The patient had suffered from a spasmodic affection of the muscles around the eyes and of the right side of the face, which at first was continuous and later occurred at frequent intervals. The family history was negative, and the child at the time of examination showed no abnormality except the presence of a redundant foreskin with a pin-point meatus. The mucus surface was much inflamed and in parts adherent to the glans penis. The examination of the eye revealed a refractive error but otherwise no abnormality. The child was circumcised, and fluid extract of Cimicifuga in ascending doses was ordered. The patient had recovered at the end of five weeks. This case, termed "habit tic" for the first time, belongs to the class of cases, described by Gowers as habit spasm: by Weir Mitchell as habit chorea; and by Wood and Fitz as chorea tic.

Dr. E. H. Siter, by invitation, presented a girl who had been operated upon for **tuberculous peritonitis**, with entire recovery.

Dr. D. J. M. Miller, in the discussion, stated that the case was very unusual, in that most cases of tuberculous peritonitis present themselves as localized ascites or as nodular masses which become evident after the ascitic fluid has been absorbed. An example of the more common occurrence was to be found in a case then under his care—a girl 9 years old. There had been a local ascites in the left lower quadrant of the abdomen, the fluid had gradually been absorbed and the child then showed a hard mass as large as a fetal head. In Dr. Siter's case, on the contrary, the condition was purely an acute inflammatory one.

Dr. J. A. Scott stated that the case was very interesting to him, as further testimony of a fact which is growing to be more and more clearly recognized, namely, that all instances of acute inflammatory trouble in the right iliac fossa are not appendicitis. He referred to Dr. Spellissy's recent article, which so clearly demonstrated that very many causes may be active in producing inflammatory trouble in the right iliac fossa. The method of onset of tubercular peritonitis in its various forms is very interesting; he had recently been observing a case that was of interest in connection with the one reported by Dr. Siter. A young woman had had four attacks of what seemed to be appendicitis. For the last one she was operated upon, and it was found that the condition was not appendicitis but a wide-spread fibrinous peritonitis. The adhesions which had formed were broken up on the right side, and the colon nearly as far as the splenic flexure was freed. It was, however, necessary to do another operation on the left side because of increasing adhesions in that region. This case was certainly not appendicitis and did not seem to be tubular peritonitis; it was chronic peritonitis without any evident local cause. While its nature was obscure, it is possible that it was a beginning tubercular peritonitis.

Dr. Stengel, in connection with operation in tubercular peritonitis, referred to operation in disseminated cancer of the peritoneum and to the improvement that sometimes follows the mere opening of the peritoneal cavity and the removal of the fluid. His attention had been particularly directed to this by Dr. Penrose, who had pointed out the fact that those cases of peritoneal cancer run a course which clinically is midway between that of malignant and infectious processes. They therefore have a certain relation to tuberculous peritonitis from the clinical standpoint; and a comparison of the results in the two conditions is consequently of some interest. The most favorable cases for operation are those which follow bilateral papilliferous growths; in some instances these cases have shown decided improvement after operation, although the improvement is, of course, only temporary. Dr. Stengel said that he knew personally of three cases in which operation had been carried out and the patient had, for the time being, decidedly improved. He had had personal experience with several cases of tubercular peritonitis that had been operated

upon with improvement, but he called attention to the fact that some of the cases which have been reported as instances of cure of tubercular peritonitis by operation were really in-instances of pseudotuberculosis. An example of this may be found in a case reported in Berlin soon after this method of treating tubercular peritonitis came out. Operation was carried out in this case with apparently brilliant results. It was ultimately learned, however, that the case was not one of tubercular peritonitis and that the nodules felt were small fibrous growths.

Dr. C. W. Burr presented a patient with idiopathic muscular atrophy and one with spina bifida.

Dr. Graham considered that, as Dr. Burr had said, there was some question as to whether the second case was a simple spina bifida or not. He was unable to detect any aperture in the spinal column, the nutrition of the structures covering the swelling was unusually good and the tumor seemed too firm for spina bifida. If it were an instance of the latter he thought it was one of those cases in which the communication with the spinal canal had been shut off.

Dr. Schamberg noted as to the existence of syphilis in the case, that the child had typical Hutchinson's teeth and a saddle back nose. Either of these would be strongly suggestive of syphilis and the two were practically convincing indices. It was not at all impossible that there was more than a coincidence between the spina bifida and the syphilis, and that a congenital syphilis had caused the developmental error which had resulted in the spina bifida.

Dr. J. A. Scott directed attention to the fact that the mass was in the common situation of sacral teratomata. He believed that spina bifida was present in the case, but thought it possible that it might be an instance of a combination of spina bifida and sacral teratoma. He had recently seen a case at the Pennsylvania Hospital in which operation upon a growth in this region was carried out because the mass was suppurating. The tumor proved to be a typical mixed one of the teratoma type; it did not show a spina bifida, which is usually higher up than the sacral region; nor did the case show any evidence of paralysis of the limbs, the bones, or the bladder, such as is found in this case.

Dr. Eshner, in discussing the case of idiopathic muscular atrophy, called attention to the fact that this affection belongs to a general class of disorders, including a number of clinical types in which the muscular condition is one of dystrophy rather than of atrophy—replacement of muscular by fatty and connective tissue; and he thought it better to use the term progressive muscular dystrophy than to bring in the less fitting one of atrophy. In connection with the differential diagnosis he also drew attention to the fact that the electrical reactions in these cases are of importance. The reaction of degeneration is not present, but the electric reaction becomes quantitatively less.

Dr. Alfred Stengel read a paper on **Rheumatism in Childhood.**

Dr. Eshner called attention to the fact that the prevailing view concerning joint affections is that the numerous forms of arthritis are probably dependent upon different causes. Arthritis occurs in association with such a variety of infectious conditions that he believed it probable that almost any infectious process might cause arthritis. He thought, however, that there was one specific affection which might be given the definite name of acute articular rheumatism, or rheumatic fever.

Dr. Schamberg, in connection with the question of bacteriological findings in acute rheumatism, said that in the case of a young girl who had died at the Municipal Hospital from purpura, endocarditis and arthritis following scarlet fever they had obtained from the heart's blood a bacillus morphologically identical with the diphtheria bacillus. It had not been further identified, and he merely mentioned the fact as of interest in connection with the bacteriology of acute arthritic conditions.

Dr. Jay F. Schamberg read a paper entitled **An Outbreak of Chicken Pox among Children Convalescent from Small pox, with Remarks upon the Relationship of the Two Diseases.** He referred to the views of Ferdinand Hebra, who, a little over a century ago was a strong champion of the theory of the identity of variola and varicella. Dr. Schamberg reported an outbreak of chicken pox among children recovering from smallpox in the Municipal Hospital of Philadelphia. The

varicella was introduced by a patient sent into the hospital under an erroneous diagnosis. In all, 33 children contracted chicken pox, the disease spreading from old to new patients and remaining in the children's wards for over three months. The earliest period at which the disease was manifested was the seventeenth day of the variolous eruption. In this child the secondary fever due to the pustulation and crusting on the skin was still in the neighborhood of 104° F. In most of the cases the onset of varicella occurred much later in the course of smallpox—about the thirtieth day of the eruption. The vast majority of the children were exposed some time before the infection was received. This is confirmatory of the view that one acute exanthematous disease is not likely to be contracted during the acute stage of another but rather during convalescence therefrom. Curschmann states that there is but little likelihood of smallpox being transmitted to patients during the early period of measles or scarlet fever.

Dr. Schamberg did not consider chicken pox so rare in adults. He had seen about ten or twelve such cases within the past twelve months.

The Chairman of the Committee of Arrangements for the Twenty-eighth Annual Meeting of the Mississippi Valley Medical Association, Dr. A. H. Cordier, has announced the dates of the next meeting in Kansas City, Mo., as October 15, 16, 17, 1902.

The President, Dr. S. P. Collings, of Hot Springs, Ark., has announced the orators for the meeting—Dr. C. B. Parker, of Cleveland, Ohio, to deliver the address on Surgery, and Dr. Hugh T. Patrick, of Chicago, Ill., the address on Medicine, selections which will meet with the approval of every physician in the Mississippi Valley.

A cordial invitation is extended to every physician in the United States, but especially of the Valley to attend this meeting and take part in its proceedings. Titles of papers should be sent to the secretary, Dr. Henry Enos Tuley, 111 W. Kentucky Street, Louisville, Ky., at as early a date as possible to obtain a favorable place on the program.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

LONDON.

Stated Meeting, Feb. 21, 1902.

JAMES TAYLOR, M.S., in the Chair.

Mr. J. JACKSON CLARKE showed a girl, aged 9 years, who sustained a fracture of the **outer condyle of the humerus** in August, 1891. When seen, two weeks after the injury, the elbow was rigidly extended, the ulna was dislocated backwards and the bones of the forearm outwards. Under chloroform the elbow-joint was fixed at a right angle. There was now perfect power of pronation and supination, and an increasing degree of flexion and extension. The case was discussed by Mr. Alfred H. Tubby.

Dr. C. O. HAWTHORNE showed a case of **congenital spastic paraplegia** in a boy 2 years and 9 months old. There was crossed progession and heightened tendon phenomena, but no mental or other evidences of a cerebral lesion unless some measure of convergent strabismus could be so explained. The patient was the issue of the third and last pregnancy and was born at the seventh month. There was no history of difficulty at birth or of asphyxia following that event. The mother was hurt by a fall during pregnancy. There was no evidence of specific disease or of family neurosis, and the parents were not blood-relatives.

Dr. Carre-Smith inquired as to the results of ophthalmoscopic examination.

Dr. Tubby was of the opinion that the subjects of this affection were never mentally complete.

Dr. G. A. Fatherland regarded the slight strabismus present as confirmatory of a cerebral origin.

Dr. Robert Hutchinson was inclined to regard the case as one of Little's Disease.

Dr. James Taylor thought that syphilis undoubtedly played a part in the causation of the disease, for he had seen some patients with syphilitic choroiditis.

Dr. Hawthorne, in reply, said that the fundus showed no changes and that the family history was not suggestive of syphilis.

Dr. Hawthorne also showed a case of **right unilateral hypertrophy** in a boy. It was most marked in the lower limb and best seen in the foot and lower third of the leg. The hypertrophy appeared to affect the bones as well as the soft tissues; the anterior and posterior tibial arteries were unusually accessible and probably enlarged; the skin was hot, and the patient complained of burning and throbbing sensations in the limb; there was some fullness of the superficial veins, and there were hemorrhagic spots and patches on several places on the leg and foot. Asymmetry of the lower limbs was noticed in the third year, but the stains in the skin were of recent (3–6 months) origin. There was no other deformity except a moderate degree of hypopadias; the mental condition was somewhat wanting in acuteness but not definitely abnormal and there was no evidence of an organic brain lesion. The personal and family histories were entirely uneventful.

Dr. A. S. Sansom believed that this was a case of genuine hypertrophy.

Dr. F. Parkes Weber thought the spots and patches were distinctly nevoid; the veins and arteries were dilated.

Dr. Hawthorne replied.

Mr. Sydney Stephenson showed a girl, 11 years of age, with a **congenital paralysis of the ocular-motor nerve** on the right side. The sphincter muscle and the ciliary muscle were both paralyzed. After discussing the theories of causation he concluded that the condition was due to an absence of functional activity of the nuclei of origin of the nerve. He did not consider that such wide-spread defects were likely to be due to abnormal attachments of the affected muscle. Mr. Stephenson also related a case of **congenital convergent squint** where the external rectus was exposed, found to have a normal appearance and a natural attachment to the sclera.

Dr. James Taylor, after mentioning the rarity of such cases, said he did not know whether any definite lesion had yet been found in the nerve nucleus.

Mr. Carre-Smith asked whether there was any evidence of congenital syphilis.

Mr. Stephenson, in reply, stated that there was neither family nor personal evidence of syphilis.

Mr. E. W. Goble exhibited a specimen showing perforation of a **tuberculous ulcer of small intestine** in a boy of 6 years. The child died from general tuberculosis.

Dr. Gwynn (Sheffield) remarked that tuberculous nodules in the intestines sometimes existed without causing any symptoms. He had come across such nodules when operating for the radical cure of hernia in children.

Dr. W. C. Chaffey (Brighton) exhibited a specimen from a girl, aged 10 years, who died with **cirrhosis of the liver and greatly enlarged spleen.** The liver was large and firm with a knobby surface and showed on section a well-marked perilobular cirrhosis. The child died with congestion of the kidneys and cerebral symptoms due to the effusion of plastic lymph at the base of the brain. There was no definite history of either syphilis or alcohol being the assignable cause of the cirrhosis; there was no dropsy and very little jaudice.

Dr. Lister thought that some obscure cases of cirrhosis of the liver in children ought to be explained as the result of an acute enteritis.

The Chairman alluded to a case in a girl, aged 15 years, who suffered from **choreiform movements.**

Dr. Weber and Sansom also discussed the specimen.

Dr. George Carpenter showed a case of **paroxysmal hemoglobinuria** in a boy, aged 3 years. There was no evidence of syphilis. Application of ice-cold water to the extremities induced an immediate destructive action on the red blood corpuscles to the extent of 20 per cent. but failed to produce hemoglobinuria.

Dr. Weber urged the importance of a warm climate in the management of such cases.

Drs. Hawthorne, Taylor and Sutherland discussed the case and Dr. Carpenter replied.

Dr. Carpenter showed a case of **extreme ichthyosis** in an infant, aged 5 months, which developed five days after birth. It had also craniotabes and chronic snuffles.

Dr. Carpenter also showed a boy, aged 8½ years, with a large head, probably hydrocephalic, a supposed sequel of **basic meningitis** during infancy. There was rigidity of the

extremities and a feeble gait. The enlarged head was not characteristic of hydrocephalus and was somewhat suggestive of hypertrophy of the brain.

Dr. C. N. Gwynn (Sheffield) described the case of a boy, aged 6½ years, who was admitted to the hospital suffering from **obstinate constipation and great emaciation.** His abdomen was enormously enlarged. As no action of the bowels could be obtained either by medicines or injections, left iliac colotomy was performed. The condition was diagnosed as a congenital dilatation of the sigmoid flexure of the colon. The result of the operation was satisfactory.

Dr. J. Porter Parkinson read a paper on **The Local Treatment of Adenoids.** This consists in the direct application to the naso-pharynx of an astringent composed of equal parts of solution of perichloride of iron and glycerine, applied by means of a curved brush passed behind the soft-palate. Dr. Parkinson advises this treatment for soft and gelatinous adenoids which cause temporary recurring obstruction of the nasal passages and other symptoms, as cough, headache, aural discharges and deafness. The method is applicable to patients of any age, and can be carried out with a minimum of discomfort.

Dr. G. A. Sutherland discussed the paper, and Dr. Parkinson replied.

A New Reaction of the Human Milk.

Moro (*Wien. Klin. Woch.*, Jan. 30, 1902).—When a few drops of human milk are added to fluid obtained from a hydrocele this latter fluid will coagulate to a firm mass in a few minutes. This does not happen if cow's milk is used. This reaction occurs with human milk even when heated and therefore must exclude the action by ferment. He was unable to determine the factors engaged in this peculiar phenomenon.—*Inter-State Med. Jour.*

BOOK REVIEWS

MANUAL OF ANTENATAL PATHOLOGY AND HYGIENE. By J. W. Ballantine, M.D., F.R.C.P.E., F.R S. Edin. Pp. xvi-527. Edinburgh, 1902. William Greene & Co.

This is a large and important work. It is devoted to fetal physiology and pathology alone, the author expecting to issue a second volume on teratology and morbid heredity.—Within

the compass of a short review it would be impossible to indicate the thoroughness and scientific care with which Dr. Ballantine has treated the varied topics following under the subject. The literature of centuries has been searched for contributions and there is little of either scientific or therapeutic value in respect of the germ and the fetus which has not been duly noted. Reading the book is not only a source of

profit but of pleasure, for the author's style is finished and his views on all vexed questions seem sure to be judicial and high-minded.

The illustrations (many of which are colored) are mostly excellent and are of a wide range of scientific and curious interest. We reproduce two of them, illustrating fetal small-pox and *hypertrichosis congenita*.—This is a book which may be conscientiously recommended to the thoughtful medical reader as the fullest and best presentation of a difficult subject so far in print. B.

Laboratory Work with Mosquitoes. By W. N. Berkeley, A.B., M D., New York, 8vo, pp. v and 112; 65 cuts, mostly original. Published by Pediatrics Laboratory, 254 West Fifty-fourth Street, New York. 1902.

Such a timely book as this will prove of interest to the practitioner and of great value to those who intend to under-

take original research in this important direction. The author states in the preface that his purpose has been to give only the information needed for successful experiments in the laboratory upon the *Culicidæ*, as the hosts or possible hosts of parasites having an additional life-cycle in man or other vertebrates. In Chapter I he carefully considers the conditions best suited for the growth and development of the numerous species of the genus *Culex* as typified by **Culex pungens** Wied. The illustrations of its life-cycle are all original and are drawn directly from life. Likewise beautiful original illustrations of the ovum, lava, pupa and imago of *Anopheles maculipennis* Meigen and *Psorophora ciliata* are given and the points for differentiation from Culex carefully pointed out and depicted. Chapter II contains much of practical value regarding the collection, feeding and breeding of mosquitoes Chapter III is devoted to a description of the anatomy of the mosquito. It is brief but sufficient to enable one intelligently to take up laboratory work of this character. The illustrations in this chapter are drawings from the author's dissections and bid fair to become classic.

Chapter V is a practical description of how to dissect, section and stain preparations.

Chapter VI deals particularly with malarial parasites, both human and avian. The author finds the English sparrow (Passer domesticus) much the most convenient bird for experimentation. Around New York in September he has found Proteosoma infection in 75 per cent. or more of all sparrows examined. He states that at least a third were severe infections with temperatures approximating 108° F. in some instances. Another chapter considers the relation of mosquitoes and filarial disease briefly.

The book closes with a chapter by Dr. Aristides Agramonte on "Mosquitoes and Yellow Fever." It contains a brief note concerning the genus **Stegomyia Theobald** and a detailed and well illustrated description of the species *Stegomyia fasciata* Fabricius, with which he is more particularly concerned.

This little work shows evidence of much careful original study and experimentation. Among the illustrations, perhaps the most commendable one is that of a stomach of *Anopheles maculipennis*, showing malarial zygotes four and one-half days old. A bibliography of the most important authorities consulted and a very full index complete the book. T.

PRACTICAL NOTES

John Lovett Morse (Notes on Some Diseases of the Kidney and Bladder in Infancy, *American Medicine*, April 5, 1902) says: "Hematuria is found in infancy under the same conditions as in adult life. It may also occur as a symptom of hemorrhagic disease of the newborn, and it is a not infrequent accompaniment of infantile scurvy. In this disease it may be one of the earliest symptoms.

"Gee, Thompson, Roberts and Barlow early called attention to the fact that hematuria may be the only symptom of the scorbutic state in infancy. Their statements hardly seem to have received the attention which they deserved, however, and scurvy is seldom thought of, I fear, as a cause of uncomplicated hematuria. My experience leads me to believe that it is one of the most common if not the most common cause of this condition in infancy."

Work of Fiction by a Medical Editor.

Mr. S. Squire-Sprigge, chief of the editorial staff of the *London Lancet*, has recently published in England a work of fiction entitled "An Industrious Chevalier." The book is very favorably reviewed by the best British journals and bids fair to make a decided hit. Mr. Sprigge is the author of the "Life of Thomas Wakley," a novel named "Odd Isaacs," and has edited the autobiography of his friend, the late Sir Walter Besant, which has just appeared in this country and England.

Biologic Relation between Milk and Serum.

Moro (*Wien. Klin. Woch.*, October, 31, 1901).—In studying the alexin bodies in the milk and serum of the infant this author finds that neither cow's milk nor human milk possesses any appreciable bactericidal properties. Furthermore, he demonstrated that the serum of breast-fed infants possesses a much

stronger bactericidal power than the serum obtained from the blood of infants fed on cow's milk. As soon as an infant is placed on artificial food its blood rapidly diminishes in bactericidal power. This property may also be extended to hemolysis, as it was found that the serum of breast-fed infants is more hemolytic than artificially fed infants.—*Inter-State Med. Jour.*

An Ointment for Inflamed Nipples.

The *Hausdoktor* for March recommends this formula:

℞ Silver nitrate.....10 grains
Bismuth subnitrate.....1 dram
Lanolin.....1 ounce

M.

To be applied morning and evening after washing the nipples.—*N. Y. Med. Jour.*

A Note on Hypostatic Albuminuria of Splenic Origin.

Dr. H. D. Rolleston (*Lancet*, May, 1902) calls attention to the fact that in some patients with considerable splenic enlargement, rest in bed or in the recumbent position may be accompanied by albuminuria and that the albumin may disappear from the urine when the patient assumes the erect position. While the albuminuria is probably due to the mechanical pressure of the spleen on the left renal vein in the recumbent posture, the occurrence of this intermittent or hypostatic albuminuria is very far from constant in cases of splenic enlargement. In this it resembles albuminuria from chronic venous engorgement induced in other ways, as in the backward pressure of mitral disease. It does not depend upon the size of the spleen for hypostatic albuminuria may be, and indeed, usually is, absent when the spleen is very large, and may be present when the spleen is relatively smaller. Further, the appearance of albuminuria in the recumbent position and its disappearance in the erect position is not absolutely constant even in those individuals with enlarged spleen in whom its presence has been noticed.

This hypostatic albuminuria is the reverse of what usually happens in cyclical albuminuria.—*N. Y. Med. Jour.*

For Gastralgia.

The *Journal de Médecine Interne* for February 15th ascribes the following to Dr. Carrière, of Lille:

℞ Chloroform water ..... 8 ounces
Cocaine hydrochloride ..... 6 grains
Orange flower water ..... 1 ounce
Distilled water ..... 3 ounces

M.

At the time of the attack, from 1 to 2 tablespoonfuls may be taken.—*N. Y. Med. Jour.*

On the Question of Cell Toxines (Cytotoxines). Thyroidotoxines. A Preliminary Communication.

Dr. Manjkovsky (*Roussky Vratch*, Feb. 2, 1902) says that by the introduction of various organs of one species of animals into the peritoneal cavity of another species, a serum can be obtained which contains substances which are specifically toxic for the cells of the organ corresponding to that introduced, if the serum aforesaid be injected into the original species. It is probable that a specific cytotoxic serum can be produced for every organ in the body of an animal. The author attempted to manufacture such a specifically toxic serum for the cells of the thyroid gland. He excised the thyroid gland of a dog and injected an emulsion of this organ in 0.8 per cent. salt solution into the peritoneal cavity of a cat. After three injections, given at intervals of two weeks each, the serum of the cat was injected into the peritoneal cavity of a new dog, with the result that certain lesions, which are not definitely described, were produced in the thyroid gland of the last animal, and in addition these dogs exhibited the same symptom-complex that is observed in dogs deprived of their thyroid gland by operation. The effects just mentioned occurred also when the specific serum was injected into the circulating blood of the dog, with a difference only in the degree of the action. The serum is therefore a thyroidotoxic one. The detailed results of this study will appear later.—*N. Y. Med. Jour.*

ABSTRACTS

SHOULD MILK BE BOILED?

W. B. Ransom (*Brit. Med. Jour.*, Feb. 22, 1902) comes to the following conclusions: We may say that there is no solid evidence to show that milk raised to its boiling point (110° C. = 233° F.) or to the temperature of boiling water for ten minutes or quarter of an hour suffers any diminution of its nutrient qualities. Neither is it probable that if consumed within 24 hours of the heating it will cause infantile scurvy. The same is true of pasteurized milk heated to 80 or 85° C. None of these methods render the milk absolutely sterile but they do kill pathogenic microbes (for example, those of tuberculosis, cholera, diphtheria and typhoid, and if the milk be kept cool and drunk within 12 hours of the heating, few or no spores will have developed into bacilli. Pasteurization is probably less reliable than heating to 212° F. for ten minutes, and is also more difficult to carry out as it is easy with simple domestic apparatus, such as Aymard's or other double saucepan, or Soxhlet's, or Hawksley's bottle-holding tins to keep the milk in a bath by boiling the water for ten minutes.

In times of epidemic summer diarrhea the heating should be prolonged for at least half an hour, and the milk drunk within a few hours, or subjected again to the process, as the spores of the bacillus sporogenes enteritidis are very resistant. Under all circumstances, milk, whether raw or "sterilized" should be drunk as fresh as possible, and then the liability to gastroenteritis and nutritional diseases will be diminished; but it is my emphatic opinion that infants who live wholly or mainly on milk as at present supplied to us should never be exposed to the dangers lurking in the raw fluid.

Lastly, nothing in this paper is intended to detract, first, from the paramount importance of children being suckled by their mothers for the first seven or eight months of their life; and, secondly, from the equally vital matter of securing a pure milk supply from healthy cows, hygienic stables and dairies and clean milk cans. Educational and legislative measures to secure such a pure milk supply should have the heartiest support of every medical man.

MEMBRANOUS CONJUNCTIVITIS.

W. H. H. Jessop (*Brit. Med. Jour.*, March 22, 1902) read notes of 13 cases treated as in-patients at St. Bartholomew's Hospital. All had adherent membrane which left a raw surface when stripped off. Eight had the Klebs-Loeffler bacillus, giving the characteristic reactions. From a culture of 3 of the cases guinea-pigs were inoculated, causing death in 48

hours and showing necrosis of tissue at the seat of inoculation and inflamed suprarenals. There was also enlargement of the neighboring lymphatic glands. The temperature was over 100° F.; albumin was present in the urine, but only one case had membrane in the fauces. In no case was there paralysis or paresis of the soft palate nor absence of knee-jerk. The other 5 cases were tested several times for the Klebs-Loeffler bacillus but without success. Two had streptococcus pyogenes, 2 had staphylococcus albus and one staphylococcus aureus. None had albuminuria, only two had raised temperatures, 2 had enlarged glands, but none had membrane on the fauces. The diagnosis between diphtherial and non-diphtherial membranous conjunctivitis could only be made bacteriologically. In these cases the clinical evidence of albuminuria, raised temperature, enlarged glands and signs of general diphtheria was a great aid in diagnosis. It was thus proved that all cases of membranous conjunctivitis were not diphtherial, and that the type of severe diphtherial conjunctivitis mentioned in text-books was rarely seen. The term, "membranous conjunctivitis," which was convenient, must be enlarged to include cases due to diphtheria and other organisms.

THE HEART IN DIPHTHERIA.

Charles Bolton (*Edin. M. J.*, April, 1902) says: It may be stated that now the majority of deaths from diphtheria are the result of heart failure, for it cannot be doubted that many of the cases which now show signs of cardiac failure would have died had they been treated without antitoxin.

Death resulting from the severity of the toxic poisoning is due to a primary failure of the heart. The class of cases which die in this way comprises essentially the severe faucial cases in which the nose is usually also involved and sometimes the larynx. Primary laryngeal cases rarely show heart failure, whereas wound diphtheria is very fatal through cardiac failure. Cases of severe toxemia in which there are subcutaneous hemorrhages, with or without bleeding from the mucous membranes, are apparently always fatal during the acute stage, from progressive heart failure. The average time of death is the tenth day of the disease, the earliest being the third or fourth, and the latest the fifteenth day; and it may be stated generally that except in a few cases, death usually takes place some time during the first fortnight of the disease.

Heart failure in the majority of cases sets in a few days before death; and although death may occur on the same day as the first signs are noticed, yet life may be prolonged for a week or even longer after the symptoms of heart failure have appeared and all hope of saving the patient has been abandoned.

The first sign is noticed in the pulse, which becomes irregular in force and rhythm, the compressibility being always increased. It is, as a rule, rapid, but at times it is slow. Sometimes before death it becomes remarkably slow, and this slowing is a very fatal sign. The pulse becomes progressively weaker and more irregular till it is imperceptible, and in this condition the patient may linger for hours or even days, to finally die

from syncope. While the pulse is irregular the patient may die quite suddenly if an extra strain is thrown upon the heart, as, for instance, vomiting or struggling. The cardiac impulse may be diffuse and slapping but this is not always seen. Occasionally the patient may experience severe precordial pain which is by no means common. The face is remarkably pale and waxy-looking, the lips are cyanosed, and, as the pulse fails, the extremities become cold and the patient restless; the respirations sometimes have a peculiar sighing character. Consciousness is retained to the end, the patient in some cases looking quite bright, so that the friends are hopeful and will not believe the prophecy of death. Vomiting may or may not occur, and when it does it usually commences after the irregularity of the pulse has indicated the onset of heart failure. The urine generally contains albumin, and in a few cases it may be entirely suppressed for a day or more before death. The temperature in the worst cases is often low.

Cardiac thrombosis.—Cardiac thrombosis is a rare cause of death in diphtheria. It was formerly thought that sudden death in this malady was due to this cause, but the fallacy of this view is now apparent.

Three cases of cardiac thrombosis are recorded by Dr. Woollacott (*Lancet*, London, 1899, vol. i, p. 1217) the first of which the author had the good fortune to witness. They were all severe cases, one being comcomplicated by scarlet fever and suppurative adenitis and the other two by faucial ulceration, so that a secondary infection was possible in each case. Two died within the first three weeks of the disease and the third on the twenty-sixth day. From these cases it appears that the chief symptoms of this condition are severe precordial pain with some variety of altered respiration and restlessness, the onset of the pain being more or less sudden. Sudden death did not occur, the heart failure being gradual and the patients surviving for several hours after the onset of the pain. The pulse was rapid but regular before the heart began to fail and when the heart dilated the pulse became irregular. There was vomiting in each case preceding the above symptoms. Paralysis was present in two of the cases.

In two of the cases infarcts were present; in one, in the kidney and spleen, the thrombus being situated at the apex of the left ventricle, and in the other the infarcts were in the lung, a thrombus being found at the apex of each ventricle and in the right auricle. In the case without infarction the clot was situated in the right ventricle at the apex and in the right auricle. The clots were breaking down and had evidently been there long before the onset of the pain, which Dr. Woollacott attributes to dilatation and distension of the heart.

Embolism of the popliteal artery, with gangrene of the limb, and hemiplegia due to cerebral embolism, have been recorded in diphtheria.

It is quite conceivable, as Dr. Woollacott points out, that sudden death might easily arise; but such was not the course of events in these cases.

Death during convalescence.—After the acute stage of the disease has passed, death from heart failure is usually associated with paralysis, and is especially seen in cases of generalized paralysis affecting the palate, pharynx, larynx and diaphragm. It is by no means the invariable

rule for patients extensively paralyzed to die from heart failure, as many die from lung complications, and when this does happen the heart failure is frequently found to be secondary to some strain, as for instance, vomiting or the shock caused by severe pain. In other cases the heart failure is only a part of the generally enfeebled condition of the patient, and presents no peculiarities. This is especially seen in those cases of marked wasting in which food cannot be retained by stomach or rectum. The heart failure in these cases of paralysis is evidenced by irregularity of the pulse, as in the acute stage, but there is no progressive enfeeblement of the circulation and death within a definite period of time as in the acute toxic cases. At this late period of the disease it is by no means so uniformly fatal, as a patient may be rendered pulseless by vomiting and yet recover.

Sudden death.—Sudden death from syncope may occur at any stage of diphtheria, but the alarming cases are those which occur when convalescence is established and the patient is thought to be quite free from danger. These sudden deaths are all referable to some strain which has been thrown upon a heart which is unprepared to meet it.

When the heart shows the physical signs of dilatation, the cardiac impulse is displaced outwards towards the left anterior axillary line, and is more or less diffuse and slapping in character. The percussion note extends a little further to the left than normal. On auscultation the first sound is short and sharp, and sometimes a systolic murmur may be heard at the apex, the pulmonary sound being accentuated. The point on which most stress should be laid is the diffuse character of the cardiac impulse and its displacement outwards, especially when it has previously been found in the normal situation.

After a consideration of the various forms of heart failure occurring during the different stages of diphtheria the very great danger to which patients during the whole course of the disease are liable, as a result of acute degeneration of the neuro-muscular mechanism of the heart, is at once apparent. This danger can only be rendered evident by a thorough and systematic examination of the heart and pulse in every case of diphtheria, however mild it may appear to be; and it can be best guarded against by keeping the patient in bed, or at least perfectly free from all excitement and strain, as long as there are any signs of heart failure, as shown by an irregular pulse or the physical signs of cardiac dilatation.

DIPHTHERIA OF THE CONJUNCTIVA.

S. Stephenson (*Brit. Med. Jour.*, March 22, 1902) communicated notes of 43 cases of conjunctivitis in which diphtheria bacilli were found. The cases formed 1.25 per cent. of the ophthalmic patients seen in two hospitals for children. The average age was 26.7 months, but 88 per cent occurred in children under four years. The cases chiefly occurred during the first 4 months of the year and often there was a history of exposure to diphtherial infection; 40 per cent. of the children were bodily ill although the series included but 3 examples of really severe diphtheria of the conjunctiva. In 5 cases there was albuminuria, while in two cases the knee-

jerks were absent. Diphtheria of the fauces or nose preceded the conjunctival affection once, was associated with it twice and followed it once. Diphtheria of the skin was present in 7 children. The preauricular and other glands were generally enlarged. The malady was unilateral in about three-quarters of the cases. Death occurred once. The infection was "pure" in 13.93 per cent. and "mixed" in 36.04 per cent. of the cases. As regarded treatment, Mr. Stephenson advised liberal and early doses of antitoxin with 1 in 5,000 solution of corrosive sublimate applied to the conjunctiva by means of a small spray. He concluded that "croupous" and "diphtherial" conjunctivitis were clinically and bacteriologically one and the same disorder.

SCARLATINIFORM ERYTHEMA IN MALARIA.

M. Anthony recently communicated this case for Dr. Billet to the *Société Médicale des Hôpitaux*, of Paris (*Progrès Médical*, 26 April, 1892). The patient was a young soldier. Typical parasites were found in his blood during the paroxysms. The latter were characterized by a marked scarlatiniform rash, which subsided somewhat in the intervals. Twenty-two grains (1.50 grammes) of quinine sulphate were injected with rapid temporary improvement and slight desquamation. A subsequent relapse (with reappearance of a punctiform rash) finally left the patient quite cachectic. He was cured ultimately with cacodylate of iron.

PEDIATRICS

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EDITORIAL COMMENTS

Approximate Estimation of the Number of Blood Corpuscles from Stained Specimens

Dr. Max Einhorn and Dr. George L. Laporte publish (*Medical News*, April 19, 1902) a method for approximately determining the number of blood corpuscles by the examination of a stained specimen of blood. The blood must be spread by capillarity between two cover glasses with the minutest attention to Ehrlich's precautions. Then the number of red and white cells in a square millimeter is ascertained. Now, multiplying these numbers by 500 in the case of the red and 400 in the case of the white will, they say, give quite approximately the number of each kind in a cubic millimeter. These constants, 500 and 400, were obtained by counting the number of red and white cells in a square millimeter in thin and evenly spread portions of smears and dividing these numbers into the numbers obtained for a cubic millimeter by the Thoma-Zeiss method. Twenty-six counts of red and white cells made in this manner and compared with the estimate made by the Thoma-Zeiss apparatus showed the greatest differences to be 11 and 12 per cent. for the red and 11 and 13.6 per cent. for the white, while the total average difference was 4.8 per cent. for the red and 5.8 for the white. To determine the number of cells in a square millimeter it is, of course, necessary to first determine the area of the visual field. Its radius can be deter-

mined by a fine stage-micrometer or the rulings on the Thoma-Zeiss counting chamber and the area calculated by the formula for determining the area of a circle. To save the latter trouble the authors print a table giving the area of the visual field for the usual combinations of lenses and eyepieces of the Zeiss and Leitz instruments. The lower eyepieces are used to count the leucocytes and the higher the erythrocytes. To still further facilitate counting the red cells, a diaphragm with a small square aperture is inserted into the eyepiece. The authors describe a diaphragm invented by themselves and made by Eimer & Amend, and give the area of the visual field included by it when eyepieces "4" of the Zeiss and Leitz instruments are used. It is impossible in this place to enter into a more detailed description of the method, so that we confine ourselves to pointing out the general principles governing it. The authors make the following claims for their process:

"Besides the fact that by means of a cover-glass count we are enabled to estimate the number of corpuscles from blood-specimens, of which we have no other count, our method offers, even when Thoma-Zeiss apparatus is at hand, certain material advantages.

"1. The whole procedure is a very simple one. Neither pipettes nor diluting solutions are needed. Every physician can easily carry a few cover-glasses in his pocket and thus always has at hand all the utensils necessary for obtaining a specimen for counting.

"2. The method is a very rapid one. If we wish to determine the number of leucocytes only we can reach an accurate estimate in five or even three minutes after staining. If besides the white the red cells also have to be counted, which, of course is a more tedious procedure, it will take from ten to fifteen minutes. Those who have had experience in blood-counting will grant that an accurate count either of the red or white alone according to the Thoma-Zeiss method will with the necessary subsequent careful cleaning of the pipette take not less than half an hour, usually longer.

"This method of cover-glass counting furthermore allows us to obtain simultaneously an idea about the condition of the blood as manifested in the stained specimen. It is easy, espe-

cially when counting the leucocytes alone, to combine a differential leucocyte count with it, which also tends to save time.

"Finally, by this method we are enabled by reason of its rapidity and simplicity to count more frequently, from hour to hour if necessary. No one will doubt that this may occasionally be of great diagnostic and prognostic value in cases of acute appendicitis or similar acute cases in which pus may be suspected and in which we have to deal with a persistent or progressive hyperleucocytosis." T.

A Valuable Sign of Hereditary Syphilis

In an article on malformations of the jaws and teeth in hereditary syphilis (*Gazette des Hôpitaux*, February 18, 1902); Dr. A. Brunet points out a sign which he considers of great value for correctly diagnosing this affection. After first stating that many of the phenomena exhibited by the teeth of those known to be syphilitic are also met with in other diseases and that certain malformations of the jaws as prognathism and arched palate are rather to be regarded as signs of degeneracy, he asks whether there be any lesions of these structures which may be regarded as presumptive evidence of hereditary syphilis. He says that it is established that erosion of the first molar, especially the first lower molar, furnishes a sign of great value for this purpose. The reason for this is found in the fact that the first molar of the second dentition is the only tooth the ossification of which begins *in utero*. This tooth is ossified and covered with its cap of dentine at the sixth month of intrauterine life. An erosion, according to this author, is a lesion which occurs at the time of formation of a tooth and is due to a momentary interruption of this process. An erosion of a molar tooth is an hereditary fetal affection having as its cause a diathesis capable of acting during intrauterine life. Now syphilis especially exercises such influence. Erosion, then, of the first lower molar in a patient whose other teeth are healthy is, he says, a pathognomic sign of hereditary syphilis. Hutchinson's teeth and the screwdriver shape of the upper median incisors, the ossification of which begins the first month after birth, can also be seriously regarded as presumptive evidences of the influence of hereditary syphilis. T.

ORIGINAL ARTICLES

A CASE OF HYPERTROPHIC CIRRHOSIS OF THE LIVER.*

By Isaac A. Abt, M.D.,
Chicago.

THIS little boy whom I present tonight is thirteen years of age; his father and mother are both living; his mother is well; he has two sisters and one brother living, all of whom are well; one sister and three brothers are dead. Five years ago, when I first saw this little patient, the following history was elicited: He was 8 years of age; he had recently come from Russia; two of the members of his family had died of Asiatic cholera. The patient himself had been ill with the same disease but recovered. At the time of entering the hospital it was noted that he had a very prominent abdomen, with enlarged liver, and a somewhat enlarged spleen. Examination today revealed the following: The boy is fairly well nourished; the musculature is somewhat flabby, although he is not particularly emaciated; the mucous membrane of the lips is pale; the teeth present no irregularities; the skin over the entire surface of the body is deeply jaundiced; his tongue is slightly coated; there is an aphthous ulcer to be seen which is located on the inner aspect of the right cheek; the conjunctivæ are intensely jaundiced, otherwise the eyes are negative; the glandular system of the neck, anteriorly and posteriorly, is negative; the thyroid appears of normal size; percussion of the thorax on the right side shows, in the region of the mammary line, liver dullness, which begins at the sixth rib; the respiratory excursion is normal; on the left side percussion is normal; the apex beat is felt at the fourth interspace. A thoracic examination revealed normal breathing over the entire chest.

Auscultation over the heart indicates the presence of a slight systolic bruit at the apex, with normal second sound.

* Presented at a meeting of the Chicago Medical Society.

The bruit is heard loudest in the second intercostal space to the left of the sternum over the pulmonary orifice. The second pulmonic is not accentuated. The bruit is transmitted somewhat to the right so that it is heard over the aortic orifice. What we hear is undoubtedly an accidental bruit. The glands in the axilla are not palpable; no glands can be felt in the bicipital groove of either side. The upper extremities are nega-

tive. On examining the abdomen we are at once impressed with its great prominence. By looking at it in this way (side view), you will notice that you can almost see the enlarged spleen through the abdominal wall on the left side. In the right half of the abdomen there is a little fullness, although it is not as well marked as in the other abdominal half.

Palpation reveals on the right side in the hypochondriac region a greatly enlarged liver; it is 3½ fingers' breadth below

the margin of the last rib; it is perfectly smooth, hard, presents no nodules and is freely movable; I can pick up the right lobe of it under my finger; it lies superficially; it has a sharp edge; I can trace the right lobe very readily and lift it up under my fingers. On the left side in the hypochondriac region and almost on a level with the anterior superior spine in the anterior axillary line I noticed a tumor which extends to the left and lies below the umbilicus in the median line. This tumor is round and plump; it has a flat surface and presents no nodosity, no roughness; it is movable and descends with respiration; this is the spleen very much enlarged. Percussion over the liver area corroborates very well the findings on palpation. Percussion in the iliac region of the right side is negative. There is absolutely no ascites present. There is no edema about the legs nor about the ankles. Examination of the back is negative.

The urine is dark in color and shows the presence of bile by employing the nitric acid test. In other respects the urine is negative.

The examination of the blood shows no changes of note.

This boy has been ill for nearly six years with a disease characterized by intense jaundice, with great enlargement of the liver and spleen. How shall we interpret these findings? In order not to place ourselves on record as presenting something entirely unique, we have a right to ask ourselves; What diseases of this variety may occur and persist for so long a time in a child of this age? Then, we may for a moment consider each one separately.

First of all, one would naturally think of some grave blood disease, as (1) leukemia; (2) malaria: (3) syphilis; (4) tuberculosis; (5) cirrhosis of the liver; (6) Hodgkin's disease; (7) amyloid degeneration of liver and spleen; (8) passive congestion of liver and spleen, as it frequently occurs associated with cardiac disease.

Is it leukemia? The blood findings in this case are such as to absolutely exclude leukemia, for the following reasons: The blood findings show no leucocytosis, no morphological changes in the reds, and the patient has but moderate anemia. Leukemia therefore can be excluded.

Malaria can be excluded, in so far as this: no blood examination has shown the presence of the malarial plasmodium. Again, the boy gives no history of malarial infection. He

never had chills, fever, or sweats. This evidence, taken together with the fact that he has not lived in a malarial district is almost sufficient to exclude chronic malaria. Of course, malaria might at one time have been the cause of cirrhosis of the liver and the malaria might be masked now.

So far as syphilis is concerned, we note the absence of a syphilitic history both in the parents and in the child. It is true that children who have congenital syphilis may suffer from interstitial hepatitis. This form is most frequent in young children. In older children syphilis is often manifested by the formation of gummata; these cause roughness and depressions upon the surface of the liver which are readily felt. These cases tend to show improvement if treated with the iodides. This little fellow has been under a prolonged antisyphilitic treatment, without influencing the course of the disease.

Hodgkin's disease can be excluded because we have no general glandular enlargement.

Malignant tumors, sarcomata, which are common in children, might be sought for to explain such a condition as this, but there are no nodosities in the liver or in the spleen. There is no great cachexia. At the end of two years or more we should have in such a boy as this, if he were suffering from sarcoma, metastatic processes, great cachexia and speedily a fatal termination.

The etiological factors for amyloid degeneration and passive congestion are absent and hence may be excluded.

If we follow the process of exclusion we are compelled to consider the possibility of the case as being one of cirrhosis of the liver. The prolonged course, the absence of ascites, the continuous enlargement of the liver, the immense size of the spleen, the intense and universal jaundice lead one to exclude the atrophic form and to consider the case under the hypertrophic or Hanot's variety.

The course of hypertrophic cirrhosis is a prolonged one; it may continue for ten or twelve years. The liver is swollen, and painful upon pressure. At first, the icterus occurs, occasionally disappearing or nearly disappearing, but after repeated attacks it becomes permanent and furnishes one of the distinguishing features of the disease. The spleen is always greatly enlarged in Hanot's cirrhosis. The splenic enlargement in the atrophic type is due to the disturbance of the venous circula-

tion; in the hypertrophic form, however, there is no evidence of venous stasis. These cases are characterized by the absence of ascites and dilated superficial veins. There is a growing tendency to regard the greatly enlarged spleen in these cases as an evidence of infection.

As the disease progresses, hemorrhages and purpuric conditions are frequent though they are not so common as in cases of atrophic cirrhosis.

In children growth and development are greatly interfered with. The splenic enlargement is always very pronounced.

Etiology.—Taken altogether the cases are not of frequent occurrence. They occur more commonly in young adults and children than in those in advanced life. It is very doubtful whether alcohol is an etiological factor in these cases. It is pretty generally agreed that infection is an important factor in the production of this variety of cirrhoais. Malaria, syphilis, typhoid and Asiatic cholera are thought to be possible causes for this condition.

The Value of Stock's Reaction.

Recently A. Stock published a new reaction for acetone in urine, the chief advantage of which was that it was not influenced by alcohol, aldehyde or similar bodies. It necessitates the addition of 10 per cent. hydroxylamin hydrochlorate solution and the same amount of 5 per cent. caustic soda and pyridine to 10 c.cm. of the fluid to be examined, which should be neutral. A layer of ether is then allowed to flow in and sufficient bromine water is added to give the ether a distinct yellow color on shaking. If to the fluid there be now added 1 c.cm. of peroxide of hydrogen, the yellow color of the ether will turn blue in the presence of acetone. H. Zickler (*Prag. med. Woch.*, March 6, 1902) finds that the test, while it possesses the advantage mentioned, is not sufficiently delicate to be of clinical value, for it is positive only with 0.02 grain of acetone in 10 c.cm. of urine —*Med. News.*

DEGENERATIVE BULBAR PARALYSIS.*

By Alfred C. Cotton, M.D.,
Chicago, Ill.

KITTY M., aged 11 years, an American schoolgirl, first came to my clinic January 17, 1902.

Family History.—Mother living and well; father died of pneumonia; she has four brothers and sisters in good health; both maternal grandparents lived to old age; her paternal grandmother developed some form of paralysis after childbirth. Her paternal grandfather was paralyzed late in life, and had some disturbance of speech which passed away before death.

Previous History.—Birth and early history negative except for the usual diseases of infancy. She had pneumonia when six years of age; diphtheria three years ago and again last April (1901) from which she apparently made a good recovery. For the past two or three years the mother has noticed more or less impairment of hearing.

Present Illness.—Early in September the mother detected slight difficulty in swallowing and some defect in the child's speech; it seemed as if there were something in the mouth. About the middle of September she was sent home from school with instructions to have her eyes tested. This was done, and she was given glasses for astigmatism.

Drooling and speech defects led to a consultation with a throat specialist, who advised the removal of post-nasal adenoids. The operation was performed about the first of October. She had occasional fits of obstinacy and cried frequently, i.e., she was emotional but showed no evidence of impaired mentality. Speech and deglutition became increasingly difficult so that the hand was occasionally employed to retain food in the mouth.

Status Praesens.—A girl of average size for her age, but somewhat pale and poorly nourished. The expressionless face, fallen lip and drooling mouth first arrest attention. She answers questions indistinctly and laboriously; the speech defect shows inability to pronounce labials and denti-linguals; she cannot

*This case was shown before The Chicago Pediatric Society in February: also before The Chicago Academy of Medicine in March, last.

wrinkle the forehead, elevate the eyebrows, close the eyes completely, purse the lips, or smile; the tongue cannot be protruded beyond the teeth or raised to the roof of the mouth; it is thickly coated, plainly shriveled and lies passively in the floor of the mouth with occasional flickering tremors. The pharynx presents no gross lesions, but the uvula and palate show some anesthesia; the voice is monotonous and of nasal quality; the

mouth is full of saliva which pours over the pendulous lip; the child masticates food slowly and swallows with marked difficulty, at times choking and coughing. Fluids do not regurgitate through the nose, nor is there any history of this symptom.

The respiration is shallow and under excitement or exertion becomes slightly snoring; she also snores while asleep.

The examination of the ocular fundus and ear gave negative results.† Pupillary reflex normal. The range of ocular movements is somewhat restricted toward the right. Slight horizontal nystagmus is at times noticeable. She cannot close the eyes completely, prolonged effort causing parallel deflection upward and to the left. Eyes are constantly suffused, and there is conjunctival anesthesia. The general muscular system shows but little wasting. Patellar reflexes normal and co-ordination good. Electrical response to both galvanism and faradism normal, with the exception of the facial muscles, which show reaction of degeneration—

A. O. C. = 2.5 M. A.
C. C. C. = 4.5 M. A.
A. C. C. = 4.5 to 5 M. A.

There is no response to faradism (the strongest current) in the facial muscles. (Kindness of G. W. Hall, M. D.) No anesthetic areas, either thermal or tactile, were found except on palate and conjunctiva. No tremors were present, except occasional fibrillary twitchings of tongue and facial muscles.

Taste as far as observed not affected.

Chest examination negative with exception of systolic murmur; abdomen negative; urine negative.

The child has been under our observation for seven weeks and during that time the lowest and highest temperatures have been 97.4° and 100.4° F.; pulse 75 to 130 and easily disturbed; respiration 10 to 26.

She has lost 5 pounds in weight, with perceptible diminution of muscular vigor. During the last week the gait has shown some uncertainty, and there is increasing tendency to sleep during the day.

All the plegic symptoms have steadily intensified since the first observation.

Bulbar paralysis is certainly so rare a disease among children that no apology is needed for bringing it to your attention. As you will recall, this disease was described for the first time in 1860 by Duchenne, and it was not until ten years later that the real seat of the lesion was recognized by Charcot and Leyden.

The fact that the symptom-complex of glosso-labio-laryngeal paralysis may accompany lesions other than the degenerative process in the nuclei of medulla, would excuse a brief

†Examined by Prof. Hotz.

consideration of the classification given by Collins in *Twentieth Century Practice.*

This author presents these paralyses with reference to their etiology under eight heads. With your permission I will give them *seriatim* in comparison with the clinical findings of the case before us.

Collins' Classification.

1. Progressive labio-glosso-laryngeal paralysis.
2. Primary vascular lesions; (a) acute inflammatory; (b) bulbar hemorrhage; (c) thrombosis and embolism.
3. Bulbar neuritis (associated neuritis of bulbar nerves).
4. Infantile bulbar paralysis; (a) familiary; (b) hereditary.
5. Secondary degenerative lesions of the bulb; (a) in amyotrophic lateral sclerosis; (b) in syringomyelia; (c) in tabes and multiple sclerosis.
6. Pseudobulbar paralysis (cerebral).
7. Tumors of medulla oblongata, including gummata.
8. Bulbar paralysis without anatomical foundation (asthenic bulbar paralysis).

From his second class, due to vascular disturbances, this case may be excluded by its gradual onset and absence of acute symptoms, as fever, disturbance of pulse-rate, vomiting, etc.

For the same reason (gradual onset) we may rule out class three, viz., associated neuritis of bulbar nerves, which condition not only causes a rapid development of symptoms, but is rarely reported as furnishing all the symptom-complex of true bulbar paralysis.

The fourth class (familiary or hereditary type) we may possibly exclude for want of corroborative history, her brothers and sisters being free from any suggestion of similar trouble.

There is no evidence of any involvement of the cord, such as spasticity, increased muscular irritability or atrophy.

Lack of sensory disturbances, as analgesia, thermic anesthesia and also lack of muscular atrophies may exclude syringomyelia.

The persistence of the patellar reflex, absence of crises and the Argyll-Robertson pupil may allow us to dismiss tabes from consideration. And although we have a slight nystagmus the intention tremor, scanning speech, rigidity and exaggerated knee-jerks of multiple sclerosis are wanting. If, as it has been

claimed, an isolated area of a developing multiple sclerosis have its seat primarily in the medulla and produce the symptoms seen in this patient, may we not claim that it is time (seven months) for symptoms of other sclerosed areas to manifest themselves?

In pseudobulbar (cerebral) paralysis we should expect a sudden onset with possible subsequent improvement until there is a second attack, possibly hemiplegia; the atrophy should be that of inanition and the muscles should not show the reaction of degeneration. Especially is atrophy of the tongue wanting. Nor is *pseudo*-bulbar paralysis long free from other evidences of cerebral involvement, as mental impairment and emotional disturbances.

From tumor of the medulla it is possible that enough time has not yet elapsed for the development of sufficient symptoms to make positive differentiation. Indeed, we have already involvement of the upper facial muscles and slight involvement of the ocular muscles.

However, the negative condition of the fundus, absence of sensory disturbances, cephalalgia etc., might lead us to exclude a tumor of any considerable size.

The entire absence of any other signs of syphilis renders the diagnosis of gummata improbable.

Asthenic bulbar paralysis, without anatomic foundation, is not recorded as showing true muscular atrophy with the reaction of degeneration. Nor is its course steadily progressive; on the contrary, almost complete cessation of symptoms follows intervals of rest.

The extensive involvement of the facial nerve seen in this case, though not of itself a part of the symptom-complex of true bulbar paralysis, still occurs with sufficient frequency not to jeopardize our diagnosis, providing the pathognomic symptoms be present.

As to the ear involvement, the history of partial deafness for the past three years would indicate merely a coincidental condition.

It seems to the writer that from the symptoms present, the course of the disease and the onset, he is justified in classing this case as degenerative bulbar paralysis. The extreme rareness of this affection in a female child lends exceptional interest to this case.

1485 Jackson Boulevard.

CHICAGO ACADEMY OF MEDICINE.

Stated Meeting, March 14, 1902.

Dr. Daniel R. Brower in the Chair.

Dr. Charles S. Bacon read a paper entitled "The Importance of Rickets in Girls from an Obstetrical Standpoint."

Rickets is a rather common disease of infancy. Its most serious results, so far as girls are concerned, do not manifest themselves until the child-bearing period. It is estimated that from 3 to 7 per cent. of all women have contracted pelves due to rickets. The importance of a pelvic contraction of 1 to 2 cm. is considerable. Concerning the etiology of the disease, the effects of unsanitary surroundings, improper food and gastrointestinal disease are acknowledged but the essence of the trouble is not yet determined. Among the food deficiencies, the lack of fat is undoubtedly the most important.

The most common pelvic deformity is the simple flat pelvis. This is caused by the weight of the trunk when the child is in the sitting or standing position. The soft bodies of the sacral vertebræ are crowded forward between the wings of the sacrum thus contracting the antero-posterior diameter. The strong sacro-iliac ligaments pull backwards the posterior margins of the ilia, and because of the anterior fixation of these bones at the symphysis the transverse diameter of the pelvis is increased.

The indications for the treatment of rickets in its acute stage are to control the disease process as soon as possible and to prevent the pelvic deformity. The disease process is corrected by dietetic and hygienic management. Gastrointestinal infection is overcome and the child placed in as good sanitary surroundings as possible. Fat, which is often lacking in the diet, is given, often in the form of cod-liver oil.

The question of the prevention of pelvic deformity is new. Its importance has been overlooked by orthopedists. It is very difficult to keep the child in the horizontal position. If it were possible to devise apparatus which would take the trunk pressure from the sacrum it would be a valuable device.

In the discussion Dr. Brower stated that he had been interested in rachitic children, because he thought rickets bore an etiological relation to epilepsy. Rachitic children often become epileptic sooner or later. Correction of the rachitic state would prevent development of epilepsy, but to do that was a problem. He had nothing new to offer in regard to it.

Dr. E. S. Talbot, from his observations of deformities of the osseous system and of other parts of the body, did not see why the pelvic bones should not be involved the same as any other part of the osseous system. Every child should have its body examined for a rachitic condition. In many cases of dystocia the pelvic bones were involved. He saw no good reason why an arrest of development should not begin in utero. The period of stress, which was at four and a half months of fetal life, was liable to produce a change in the osseous system and the pelvic bones became involved. It should be the duty of every physician who delivers a female child or has to care for it, to examine the pelvis. The earlier the disease is recognized and treated the better for the child.

Dr. James C. Kiernan said that osteitis, osteomalacia and rickets had intimate inter-relations. In rickets there was probably often an osteomalacious element. On the other hand, osteomalacia probably did not exist without, in some directions, osteitis or rickets. Some years ago the elder Winckel showed that osteomalacia and rickets were dependent, to a large degree, on the environment of the parents. Osteomalacia, according to the younger Winckel, was prevented by improving the sanitary surroundings of the parents. Under ordinary biologic laws the belief was becoming more and more prevalent, that during periods of stress, not merely intrauterine periods, but the period of first dentition, the periods between six and twelve and between twelve and twenty-five, all these questions should be considered, not merely for the benefit of the woman but also for the benefit of the child. A well developed child might not be able to pass a rachitic pelvis while a defective child could. Rickets, in his opinion, was often an expression of premature senility. At about four and a half months of intrauterine life there were senile tendencies which meant precocity. Precocity meant premature development of the bony and of the central nervous system at the expense of general vitality. Dr. Bacon had therefore raised a question of considerable importance in the control of degen-

eracy. Rickets was most likely to occur in an individual defective either from heredity or from environment during the periods of stress. Rickets, osteomalacia, osteitis and excessive osseous development did not involve local bone conditions only. The latest developments in connection with leontiasis ossium and acromegaly, tended to show that they depend to a considerable degree upon hypophysis disorder. As to what affected the symphysis was a question which must be settled in each individual case. There was a general law covering a struggle for existence between all the organs for the assimilable nutriment. Were that struggle for existence disturbed, certain organs would acquire nutriment at the expense of others. In such case the bones might gain at the expense of the central nervous system or of other organs. On the other hand the other organs might gain at the expense of the bones. The hygienic lesson therefore was to establish a balance.

Dr. Bacon, in closing, said that he had not discussed fetal rickets at length since the relation of fetal rickets to infantile rickets was not very well established. Although they might be related in the way rickets is to osteomalacia, where the tissue was absorbed, still most pathologists considered them distinct pathologic processes. The pelvic deformity in infantile rickets was different from that in normal rickets. The peculiar rotation of the sacrum on the transverse axis through the second bone did not occur in fetal rickets and there were other variations. The hereditary element in rickets was somewhat doubtful. Rickets not rarely developed where the parents were in the best physical condition. Particularly was this true in bottle-fed children or in those who were fed improperly.

Dr. Alfred C. Cotton reported a case of degenerative bulbar paralysis (see page 409).

Dr. James G. Kiernan said that aside from the mere diagnosis of bulbar paralysis local conditions resulting in it should be considered. There was a growing tendency to take into account states which were considered by the older clinicians as autointoxications or asthenic bulbar paralysis. Anyone who has followed the bulbar paralytic states or the conditions presenting the symptoms in these children for a time dating back to many years would realize that there were a number of states in which, unless they terminated early in death, patients recovered gradually and the condition disappeared. There were states here, as in many other neuroses, which, whether second-

ary to the toxines of germ disease or to the autotoxic states, were dependent upon a bio-chemical lesion that did not necessarily effect a neuritic change. Every alienist could recall certain psychoses of an acquired type which presents psychic symptoms of locomotor ataxia or of paretic dementia accompanied with cerebral disturbances of motor and sensory type, temporary in character. In locomotor ataxia and in paretic dementia every one of the symptoms of bulbar paralysis occurs temporarily and disappears. On logical analysis it was clear that this temporary condition was due more to toxemia which might or might not be of an autotoxic state but which was certainly temporary and which improved after a time. The same was true of psychoses which occurred in children. He had been puzzled by a certain class of cases among children of a paralytic type in which encephalic symptoms of bulbar disturbance were present, but in which the symptoms with improved nutrition and improved elimination disappeared. It seemed to him that the comparatively good outcome (which occurred in a by no means small proportion of these cases, so far as the individual symptoms were concerned of the allied conditions occurring in paretic dementia and in locomotor ataxia, in which the toxin and the toxemia played a part in symptom development), justified a distinction between a gross lesion and a temporary bio-chemical lesion. Even in organic cases a large amount of seeming organic disturbance was often due more to temporary shock, producing mental inability to use certain functions, than to actual loss of power. Even in hemiplegia, where there was an apparent deep-seated symptom, much of the loss of power was not due to the destructive lesion but to secondary disturbance produced by it. The same condition obtained in a number of sensory conditions. These conditions were peculiarly apt to occur in childhood. Dr. Cotton had probably seen after scarlet fever, after cholera infantum, after other allied states, conditions which simulated very strongly the condition shown in this case and which conditions had a good prognosis. In childhood bio-chemical lesion might express itself much more seriously than a destroying organic lesion, might therefore be long-lasting and yet might ultimately recover. The hearing in the present case was much better than one would at first anticipate. Certainly bone conduction was in fair condition; so was general air conduction. In dealing with these defects it must be remembered that in a child

the inhibitory element resulting from the child's attempt to determine its state played a greater part than in the adult. The query naturally arose, whether there were an organic lesion or whether there were merely an asthenic bulbar state.

Dr. E. S. Talbot said the facial bones of the child were markedly arrested in development. The nasal cavity was deficient, also the lower jaw and the bony structure of the chest itself. Where there was a marked arrest of development of the bones of the face there was often such a condition of the chest walls.

Dr. William J. Butler said that the symptoms had markedly increased since the patient first came under observation. There was only a small space left between the upper and lower eyelids now, but there had been ¼ inch. While the child could not talk very clearly before, it was possible to understand her, but now what she says is hardly intelligible. The voice had become much more feeble and was quite hoarse. He did not think the impaired hearing was associated with the present trouble. The child had been somewhat deaf for three years according to the statement of the mother. There was nothing with which the atrophy of the tongue would correspond other than bulbar paralysis. As to the prognosis he was inclined to differ from Dr. Kiernan. He thought that there had been actual degenerative changes as the condition had been steadily progressive.

Dr. Daniel R. Brower thought the facial paralysis due to a destructive lesion either in the nucleus or in the course of the nerve, because the facial muscles would not respond to faradism and they showed the reaction of degeneration also with galvanism. The child had tongue atrophy and tongue paralysis; there was some disturbance both of respiration and circulation, yet the foundation of it all could be attributed to diphtheria toxins. In his experience paralyses, the product of diphtheria toxins, were by no means as unfavorable as were paralyses from other causes. He was not disposed to regard the case as having an entirely unfavorable prognosis.

Dr. Butler said that the symptoms did not develop until some time after the diphtheria, perhaps three or four months.

Dr. Brower said he met with diphtheria paralysis in which there was a considerable interval between the acute symptoms and the paralytic development. There was a little uncertainty as to when the symptoms began.

Dr. Cotton stated that, according to the report of the mother, the symptoms were noticed when the child went to school in September. On one or two occasions (in August) the child made a noise during mastication and noticed difficulty in swallowing. Shortly after this the mother observed that the child's speech was thick. She directed the child to keep things out of her mouth, but the child assured her that her mouth was empty. The attack of diphtheria occurred in April but it was not until about September that there were indications of tongue paralysis There had been some discussion between his associates and himself as to the extent of the impairment of hearing. The first time he thought the child's apparent deafness was largely due to her embarrassment. The next time he examined her she heard quite readily, and the nurse said the child undoubtedly read from the lips. The mother had noticed the child's impairment of hearing two or three years ago. Until tonight he had not seen the child for a week, but during that time the disease had markedly progressed. The child was losing muscular tone rapidly; she was becoming generally asthenic and in every way was getting worse. She had lost at least 5 pounds in six weeks. He brought the child to the Academy for the purpose of getting the opinions of the fellows. He wished he could be as sure as Dr. Kiernan in giving a favorable prognosis. Personally he thought the outcome of the case was extremely discouraging.

Herpes Zoster.

A severe case of the ophthalmic variety of this eruption is reported by W. S. Durand (*Phila. Med. Jour.*, March 29, 1902), which is of interest because of the treatment used. The lesion involved one eye and the corresponding side of the forehead, with extreme pain in the area of distribution of the left cervical plexus and closure of the eye. Several drops of a solution of adrenalin chloride, 1-1000, in normal salt solution, with 0.5 per cent. chloretone were instilled into the eye at minute intervals and caused an immediate obliteration of the swelling and abatement of the pain. The instillations, together with swabbing of the entire eruptions, t.i.d., brought about a subsidence of the lesion in ten days together with a gradual limitation of the painful area. Internally Fowler's solution, digestive and laxative tonics were also administered.—*Med. News.*

SOCIETY REPORTS

NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting March 13, 1902.

R. G. Freeman, M.D., Chairman.

Continued Imbecility Following Scarlet Fever.—Dr. Henry Illoway presented an imbecile boy, of four years; the boy presented certain marks of degeneracy, and the imbecility had developed after an attack of scarlet fever.

Dr. C. Herman said that cases had been reported in which temporary imbecility had followed scarlatina, typhoid and other infectious dtseases.

Dr. Illoway replied that the cases referred to by the last speaker were rather examples of weakness and exhaustion following the acute infectious diseases, but true imbecility, occurring as a sequela, was usually dependent upon a true inflammation of the meninges. This boy had not recovered his speech and the condition seemed to be permanent. He would explain it as being the result of the general infection.

Notes on Acute Joint Diseases of Infancy.—Dr. T. H. Myers presented a brief paper with this title. He said that it was impossible to draw a sharp distinction between acute periostitis and acute osteomyelitis as the structures involved in the two affections were practically continuous. An epiphysitis in an infant was less likely to become an osteomyelitis of the shaft because of the intervening cartilage. The exact reason why certain joints or bones were affected by certain diseases was not as yet known. In making the diagnosis the age of the patient was sometimes of assistance. Acute articular rheumatism was practically never seen in early infancy. Scurvy was usually observed between the ages of 8 and 20 months and hemophilia was apt to develop about the end of the first year.

When abscess formation accompanied disease of the bones he had found a leucocytosis quite uniformly, but he was of the opinion that blood-counts should only be made by experts because of the great liability to serious error. This occurrence of leucocytosis in abscess cases was considered by some to indicate infection and to point to the necessity for incision of the abscess; however, various authorities on blood examinations had expressed the opinion that a moderate leucocytosis might occur without infection of the abscess. It was well known that an acute osteomyelitis was usually produced by staphylococci or streptococci, although it sometimes resulted from infection with the tubercle bacilli. If the joint were affected primarily it was usually by the staphylococci or streptococci, although occasionally joint affection was the result of a gonococcus infection. He had never seen a typhoid periostitis in a young infant. The onset of tubercular osteomyelitis was accompanied by fever, chill and sweating, but the joint motions were not limited and the swelling could often be located at some distance. Syphilitic periostitis is usually met with in the first two years. A personal history of syphilis was often wanting. The speaker said that he had tried tuberculin as an aid in diagnosis in many cases and had not met with any failures. He thought a positive reaction proved the presence of tuberculosis or syphilis and the differentiation between these two could be made by the therapeutic test. He had seen a number of infected joints in children who had vulvovaginitis, and the vaginal discharge in these children was found to contain gonococci, but staphylococci or streptococci and not gonococci were found in the affected joints. Staphylococci and streptococci were found in practically all secondary infections. The mechanical treatment of acute joint diseases in infancy was the same, in so far as the rest of the affected part was indicated. Extension was also desirable in most instances. The application of splints to infants was always difficult, but as little as possible should be left to the nurse. A plaster of Paris spica bandage with extension plasters underneath was often a better protection for these little ones than the usual hip splint. If the elbow were involved the arm should be fixed to the thorax in small infants. In some cases of hemophilia, in which it was desirable to use splints this plan was impracticable because of the pressure of the splint gives rise to ecchymoses. In a boy suffering from hemophilia he had seen repeated effusions into

the knee-joint recover perfectly without any treatment whatever. By early incision only could one expect to save the head of the femur in acute epiphysitis. The diaphysis should not be entirely removed in a case of acute necrosis; it was better to leave it as a splint until new bone had formed.

Chronic Joint Diseases in Children.—Dr. Henry Ling Taylor read this paper. He said that chronic joint disease in children meant tuberculosis in nine cases out of ten if not in a still larger proportion. It was safe to say that tuberculous joint disease furnished about one-fourth of the material at the large orthopedic clinics. There was a certain number of rheumatic, traumatic and syphilitic joints, and also certain joint affections following the acute infections, but such joints were apt to be tuberculous. Hemorrhagic and scorbutic joint affections had recently been attracting considerable attention. The comparatively small number of syphilitic joint affections in our clinics was remarkable. It was now recognized that dactylitis is tuberculous in the large majority of cases. Suppurative arthritis in infants was usually an acute infection, and if properly treated by drainage, would seldom become chronic. The speaker said he had seen very little of rheumatic affections in children and wished to warn against the hasty diagnosis of rheumatism in children, and particularly if only one joint is involved. In tuberculous joint disease the primary lesion was almost always in the cancellous tissue near the epiphysis. One of the most marked characteristics of tuberculous joint disease was its insidiousness. It might exist unnoticed for months until brought out by some trauma. It had been remarked that a comparatively slight injury was oftener followed by bone tuberculosis than was a more severe trauma. Whooping cough and measles were very frequently followed by tuberculous disease of the vertebræ. In many cases no cause could be assigned. Too much stress should not be placed upon the family history. The frequent absence of pain in the early stages and throughout the disease added to its insidious character. Local heat and constitutional disturbance might be absent during the stage of invasion. The most characteristic symptom was stiffness or limitation of motion due to spasmodic contraction of the muscles. If the hip or spine were suspected the child should be completely undressed in order to properly study the gait and the action of the various muscles. Pain when present in

vertebral or hip disease was usually referred to the terminal filaments of the nerves affected. In vertebral disease the pain varied with the region of the spine affected. Gastralgia was such a persistent symptom in dorsal disease that when present for any length of time it should lead to careful examination of the vertebral column. Pain was often provoked by coughing, laughing, or by being jolted in any way. The pain was frequently severe and paroxysmal, but in some cases the child merely showed peevishness and a disinclination to move about. Pressure over the spinous processes of the vertebræ to elicit tenderness gives no reliable information. Limitation of motion at the hip was the earliest and most delicate test of disease of this joint. Disease of the lumbar spine as well as hip disease might give rise to pain in the knee, and it should not be forgotten that pain in the knee was often absent in cases of hip-joint disease. Rickets apparently afforded a relative immunity to bone tuberculosis.

Dr. A. L. Fisk spoke of the acute suppurative joint diseases in children. His records at the Babies' Hospital showed seven cases of this kind in infants. The course of the disease was very much like that of pyemia In the earlier cases streptococci and staphylococci alone had been looked for and had of course been found, but more recently search had been made for the pneumococcus and for a precedent pneumonia, and these had been discovered in several cases. The method of treatment had consisted in incision and washing out of the joints. He had used a mixture of equal parts of alcohol and carbolic acid as being efficient and not so severe as the pure carbolic acid.

Dr. R. A. Hibbs said that he now had under observation two boys having hemophilia. Effusions had taken place into the joints and for this reason he was pleased to hear from Dr. Myers that such cases would recover spontaneously.

Dr. H. W. Berg contrasted the older notion of the prevalence of rheumatism in young children with the present view of bacteriologists concerning the joint infections occurring with acute infectious diseases. The milder grades of polyarthritis occurring under such circumstances might be easily overlooked if the child were not carefully examined. He had tried various

internal medicines in the acute inflammatory joint lesions occurring in connection with scarlet fever and diphtheria, but had come back to the salicylates as being the best remedies for relieving the condition even though we could not satisfactorily explain their action. Some years ago he had reported six cases of joint affection of this nature of more than usual severity. Several of these cases terminated in bone changes and required immobilization of the affected joints. The speaker said that he was glad Dr. Taylor had pointed out so clearly that chronic joint disease was often wrongly diagnosticated. It should be added, however, that orthopedists had been known to diagnosticate articular rheumatism as bone tuberculosis. If the rheumatism affected only one joint, and particularly if this joint were the hip, the differential diagnosis was by no means easy because of the presence of muscular spasm in both affections.

Dr. R. G. Freeman said that he had been deeply impressed with the fact that in the New York Foundling Hospital rheumatism was almost never met with, although it was not uncommon to meet with joint affections of the nature of septicemia.

The Anatomic Factor in Baldness.

If the term "scalp" be restricted to the soft parts which cover the vault of the cranium above the level of the temporal ridges and the superior curved line of the occipital bone, it remains a striking fact that this area corresponds quite closely with the limits of ordinary baldness. Elliott (*Jour. A. M. A.*, March 29, 1902) believes that the anatomical factor largely influences this condition and calls attention to the fact that wherever, as in the palms and soles, there is an intimate connection between the skin and underlying fascia, hair is absent. The skin of the scalp, moreover, has no underlying muscles to exercise it and although the scalp is very vascular there is little to aid the return flow. The lymphatic and venous circulation is also largely obstructed by the pressure of the hat. The indications for treatment therefore point to regulated massage before the absorption of the underlying fat and atrophy of the occipito-frontalis muscle—that is during early life. —*Medical News.*

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

LONDON.

Stated Meeting, March 21, 1902.

Dr. H. Ashby (Manchester) in the Chair.

Dr. A. E. Sansom showed a case of **Hodgkin's disease** in a girl 8 years old. The glands on the left side of the neck were greatly enlarged and the spleen occupied the left half of the abdomen. The child was anemic and the leucocytes were deficient. The disease started four years previously, subsequent to measles.

Dr. R. Hutchinson remarked upon the tuberculous nature of several examples of the disease he had examined and upon the impossibility of determining post-mortem from the naked eye whether they were tuberculous or not.

Drs. Morison and Kelson commented upon the case and Dr. Sansom replied.

Dr. Harcourt Gervis showed a case of **double aortic disease** in a boy of 13 years in whom a presystolic murmur was present at the apex.

Dr. Sansom thought that the presystolic murmur did not indicate mitral stenosis but was an example of Flint's murmur.

Dr. Morison was of the opinion that pericardial adhesions were partly responsible for the enlargement of the heart and spoke of the propriety of surgical interference in selected cases.

Dr. Theodore Fisher (Bristol) considered that pericardial adhesions to the chest wall did not produce cardiac enlargement and consequently thought surgical interference would be inadvisable even if the case could be diagnosed.

Dr. Gervis replied.

Mr. Arnold Lawson showed a case of **congenital proptosis** in a child of 3 years and thought it due to imperfect development of the base of the skull and the orbital plates.

Mr. W. H. Jessop discussed the case and agreed with the diagnosis.

Dr. Hutchison said that he had a similar case under his care.

Dr. Cautley referred to the high palatine arch in the case.

Dr. Sutherland thought whatever mental defects were present were only apparent and were due to defective hearing consequent upon the presence of post-nasal adenoids.

Dr. Campbell Pope showed a case of **infantile scurvy** in a female infant, aged 8½ months, which had been fed on patent foods and had developed hematuria, periosteal hemorrhages and gingivitis. The symptoms had started three months before. The existence of hematuria had suggested the presence of a renal calculus and the child had been examined by the X-rays.

Dr. George Carpenter read a paper on a case of **scurvy** in a rickety boy aged 5½ years. The gums were affected and the child's dietary, owing to his curious tastes, was very defective. Dr. Carpenter discussed the etiology of scurvy and called attention to the difficulty which is experienced in arriving at a definite conclusion as to the exact causation of these cases.

Dr. Sutherland said that in his experience the prognosis was often grave.

Dr. Cautley discussed the question from the point of view of infant feeding and thoroughly endorsed the remarks made by Dr. Sutherland on the injurious effects of patent foods.

Dr. C. W. Chapman called attention to the value of fresh milk.

Dr. H. Ashby (Manchester) spoke as to the obscurity surrounding the causes of infantile scurvy.

Dr. Theodore Fisher thought that in fatal cases death might be due to secondary infection, and Dr. Carpenter replied.

Dr. W. P. Montgomery (Manchester) showed a specimen of an **inverted Meckel's diverticulum** which had formed the apex of an ileo-colic intussusception. The condition was, he stated, a rare one, there being not more than six cases on record.

Dr. Theodore Fisher (Bristol) showed a specimen of **congenital disease of the heart**, from a child aged four months

in which a wide communication was present between the aorta and pulmonary artery and attached to both pulmonary and aortic valves were large vegetations. Dr. Fisher also showed a stomach from a case of **diphtheria**, in a child aged three years, which was dotted over with numerous petechiæ; there were no petechiæ elsewhere, the large intestine excepted. There had been hematemesis two days before death.

Dr. H. Ashby (Manchester) read a paper upon a case of **combined empyema and purulent peritonitis.** A girl, 8½ years old, was seized with vomiting and diarrhea followed by pleuro-pneumonia and peritonitis. An empyema and suppurative peritonitis followed. Pneumococci and the micrococcus tetragenus were found in the pus of the empyema and the micrococcus tetragenus in the peritoneal pus. The girl made a good recovery.

Dr. A. E. Sansom complimented Dr. Ashby on his paper.

Dr. Theodore Fisher said that he had made post mortem examinations of cases of combined pleural and peritoneal infections due to the pneumococcus and other organisms.

Dr. David Nabarro called attention to the pathological records of the Evelina Hospital for the past year of cases in which peritonitis was associated with empyema. After remarks by others, Dr. Ashby replied.

Rhinitis.

In cases of chronic rhinitis Maravel (*Med. Annual*, 1901) recommends the following mixture as a snuff:

℞	Cocaine hydrochlor.	gr. 2¼
	Camphor.	gr. 1½
	Alum.	gr. 1½
	Menthol	gr. ¾
	Sugar.	gr. 1½
M.		—*Practitioner.*

BOOK REVIEWS

THE ROENTGEN RAYS IN MEDICINE AND SURGERY.—By Francis H. Williams, M.D.,—New York. MacMillan & Co., 1901. Pp. xxx, 658. Price $6.

This book has good warrant to be considered valuable, coming from Dr. Francis H. Williams, and though the author modestly calls it only a "report of progress," it will be found to cover pretty much the entire X-ray field as far as medicine and surgery are concerned.

Chapters on the Nature and Properties of the X-Rays, on X-Ray Equipment, and on Technique of X-Ray Examinations commence the book. The medical and surgical diseases of the body are then taken up in an orderly way, and a chapter is added on X-Rays in Dentistry. The illustrations are, in the main, instructive and useful. No one who owns an X-ray machine or is interested in X-ray work should be without this book. B.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. MEDICINE.—Under the general editorial charge of George M. Gould, M.D. W. B. Saunders & Co., Philadelphia and London. 1902.

This work in one volume has long been favorably known to the profession. Now for the second year it is issued in two volumes—one devoted to medicine and one to surgery. The only change in the able corps of editors is the association of Dr. Aloysius O. J. Kelly with Dr. Riesman in the Section on Pathology. The Section on Pediatrics is under the able direction of Dr. Louis Starr and Dr. Alfred Hand. It contains brief abstracts of most of the more important papers on pediatric subjects appearing during 1901. The editorial comments on the abstracts are often witty, pithy and wise. T.

PRACTICAL NOTES

Acute Rheumatism.

The following is recommended (*Med. Annual*, 1901) for acute rheumatism:—An ointment composed of liquid vaseline 1 oz., salicylate of menthol ½ oz.; this is smeared upon lint and bound about the joint and the lint is now in turn covered with guttapercha. In other cases an ointment composed of salicylic acid, as follows, may be used:

℞ Vaseline ..... 1 oz.
Salicylic acid ..... 45 gr.

In still other instances salicylic acid can be used as follows:

℞ Salicylic acid ..... 1 dram
Salicylate of sodium ..... 60 gr.
Extract of belladonna ..... 15 gr.
Vaseline ..... 1 oz.

This may be applied in the same way as the ointment of the salicylate of menthol. Salol is said to be especially useful in gonorrheal rheumatism. It may be dissolved in ether, and used in the following prescription:

℞ Salol ..... 1 dram
Menthol ..... 30 gr.
Ether ..... 1 dram
Lanolin ..... 1 oz.

Guaiacol, when locally applied, is also a powerful pain reliever as well as an antipyretic.—*Practitioner.*

The Etiology of Carcinoma.

A new contribution to the theories which have been formulated regarding the causes of cancerous growths, is advanced by Feinberg (*Deutsch. med. Woch.* March 13, 1902). A histological examination of carcinomata in an early stage of growth

shows the presence of three classes of cellular elements: (1) Polymorphous cells, containing nuclei of varying sizes and shapes; (2) cells with distinct karyokinetic figures; (3) independent of these, certain vacuoles which even with intense staining seem to be entirely empty. The author believes that the latter are specialized organisms and independent of the system. Their characteristic elements are a double enclosing membrane which is stained deeply by orange G, a nucleolus staining readily and surrounded by a clear, unstained zone, and the latter enclosed in a lightly stained plasma with faint radiations. These properties seem to fix the structures as unicellar organisms, probably belonging to the sporozoa. They were demonstrated in six cases of carcinoma, three of the breast, two of the intestinal canal, one of the rectum, and attention is directed to the necessity of securing fresh material from early cases. The author suggests, moreover, that the vacuolar condition found is merely an encysted form of the organism, a protection against the onslaughts of the normal cells. The tumor can be considered the result of cell changes and multiplication, brought on by the irritant influence of the intruding organism. It may also be feasible to employ this means of identification in the diagnosis of early and doubtful cases of carcinoma—*Med. News*.

Blastomycetic Dermatitis.

Two cases of this interesting disease are reported by F. J. Shepherd (*Jour. of. Cutan. and G.-U. Dis.*, April, 1902) which were successfully treated by potassium iodide. Both patients were males, aged 38 and 72 years respectively. The lesions in each case were on the face. Diagnosis was confirmed by finding the budding yeast forms in the tissues. Curettage and cauterization of the affected surface were without result, but improvement was noted in a week after beginning the iodide treatment, the dosage varying from grs. 20-60 t.i.d. Another case is reported by Walker and Montgomery (*Jour. A. M. A.*, April 5, 1902) which is of interest as being the only instance recorded in which an undoubted cutaneous blastomycosis has been followed by a systemic infection with blastomycetes seven years after the beginning of the lesion on the back and face. Death was diagnosed as due to miliary tuberculosis secondary

to the cutaneous lesion. Microscopical examination of the lung tissue, however, showed the characteristic organisms, which seemed to have caused inflammatory changes comparable to those found in pulmonary tuberculosis. During the progress of the disease no remedy had been of any benefit.—*Med. News.*

Diaphoretic Powder for Colds.

℞ Powdered camphor.....gr. .10
Powdered opium.....gr. ⅓
Potassium acetate.....gr. 3
Sugar.....gr. 150

M.—To form one powder, which is put into a cup of tea and taken at bedtime.—*Practitioner.*

Neurasthenia.

Rest, regulated diet and exercise are indicated; bathing is of great value, as increasing elimination and for its tonic effect upon the nervous system. The salts of lithia are of service; Vichy or Hunyadi water may be used in some cases. Of tonics, the phosphorus-containing compounds are our mainstays. Strychnine is of value, but must be used with care. Suggestion and psychotherapy often accomplish a great deal. Morphine should not be used.—Dr. J. G. Roberts, in the *Phila. Med. Jour.*

New York City Vital Statistics.

The vital statistics for the city show that the death-rate for 1901 was 22.02, as against 20.57 for 1900. There were 33,485 marriages, as against 32,247 in 1900, while the births were 80,735 this year, against 81,721 in 1900. There were in all 70,808 deaths reported to the Health Department during the year, 8,295 of which came from the Morgue; 3,219 of these were children under five years of age; 3,857 deaths were due to accidents, 701 to suicides, 105 to homicide, and 1,273 to sunstroke. Pneumonia killed 9,128 and consumption 9,396, while 729 deaths were from typhoid fever.—*Medical Review of Reviews.*

ABSTRACTS

REMARKS ON THE RELATIONS OF HUMAN AND BOVINE TUBERCULOSIS.

C. H. Cattle (*Brit. Med. Jour.*, Feb. 22, 1902) writes as follows on the above subject: What are our reasons for believing in the identity of human and bovine tuberculosis, and that the disease can be transmitted from one species to the other?

1. The bacilli found in each case are extremely alike both in their form, their staining reactions and their mode of growth under artificial cultivation.

2. These bacilli, whether of human or bovine origin, produce typical tuberculosis when injected into rabbits and guinea-pigs.

3. Tuberculin prepared from human tubercle bacilli produces a characteristic reaction when injected into tuberculous cattle just as it does when injected into tuberculous man.

Objections can be urged against each of these statements. The similarity of the bacilli, it is said, does amount to identity of form. The bovine bacillus is not beaded like the human one and is also shorter and thicker. In pure culture there are some differences in the mode of growth and the bovine bacillus will not grow on glycerine-agar while the human will.

A fact admitted by all observers is, that while both bacilli are pathogenic for animals, the bovine bacillus is much more virulent than the human. The fact, however, may eventually turn out unfavorable to Koch's views. His argument is based on the results of experiments in which he found calves very susceptible to bovine tuberculous material, whereas these animals were not susceptible to infection by human material, and swine but very slightly. But it is a matter of experience that man is as a rule liable to the diseases which are common to the domestic animals, and if bovine tubercle is virulent for a large number of different animals it strengthens the probability that it is virulent for man also. With regard to the tuberculin reaction Koch explains that, although the bacilli are different, they belong to the same group, the members of which give a common reaction with toxins. In support of this statement he points out that typhoid serum agglutinates cultures not only of typhoid bacilli, but also of paratyphoid (a form of colon bacilli). As regards pathological and experimental evidence, the conclusion seems to be justified that the differences between human and bovine bacilli are those of variety rather than of species, such variation being due to the soil on which the organism grows.

Other observers, however, have not met with such uniformly negative results after attempts to communicate human tubercle to cattle. Ravenal, of Philadelphia, inoculated intraperitoneally four calves with

human sputum; three of these became tuberculous, two showing extensive lesions of true *Perlesucht* character. Contrary to Koch's experience, he found swine very susceptible to infection by human sputum. Lately Professor Delépine has succeeded in giving human tubercle to the calf. Dr. Sidney Martin fed calves on bovine and human material. Those fed with bovine material were easily infected. The experiments with human material, while not being entirely negative, failed to communicate tubercle in two cases out of six, while in the other four there were lesions of limited extent in Peyer's patches and the mesenteric glands. Accidental infection of cattle, pigs, and even fowls, by means of the sputum of the phthisical attendants, has been thought possible and cases in support of this have been cited, but as we are not told that all other sources of infection were excluded, the evidence is not very convincing.

We may now turn from the possibility of communicating tuberculosis from man to cattle to the far more important consideration, whether transmission of the disease from cattle to man can take place and whether the danger of contracting tuberculosis from meat and milk is real and substantial. I have nothing to say about the danger from meat, because meat inspection is practised by our authorities; and even if tuberculous meat escapes the inspector, the risk is so much diminished by cooking that the transmission of tuberculosis by this means is so rare as hardly to constitute a substantial danger. Dr. Sidney Martin tells us that meat itself very rarely contains tubercle bacilli, and that danger consists only in its being contaminated by knives, cloths, etc., which have been in contact with tuberculous organs. Nocard was unable to infect animals by feeding with raw flesh from highly tuberculous beasts, and even inoculation with juice from the same usually failed. The case is different as regards milk, because it is much more frequently taken uncooked, and the general opinion is that it is a fertile source of the tuberculosis of childhood. This belief is supported by the findings of the Royal Commission in 1895. We are told that something like 30 per cent. of milch cows—kept as is usual in confinement—are tuberculous, but only the milk of cows with tuberculosis of the udder is infective. Udder disease is said to exist in 2 per cent. of cows; but this estimate may be too high, for Mr. Lloyd, veterinary surgeon to the Manchester Corporation, after examining 9,576 animals, found this affection in 0.5 per cent., and appears to consider this a fair average for the whole country. Tuberculous milk is dangerous in proportion to the number of bacilli contained in it, and it is easy to exaggerate the infectiveness of milk, unless we remember that the infection is very much diluted by the mixing of milk. Tuberculous milk has been amply shown to be infective for animals. Knowing this, we find in the bodies of children lesions in the intestine, glands or peritoneum, and we argue thus: All children drink milk, some milk is infective, therefore some children die of infection by milk. This conclusion may be correct, but in forming it there is something we have not taken into account.

In breathing a germ-laden atmosphere tubercle bacilli may be deposited in the mouth or nose and afterwards swallowed mixed with mucus, or even after being inhaled they may be expectorated and swallowed. It is not only milk that goes into the mouths of children; they grub about on all-fours, plastering their fingers with the tuberculous dust hidden

away in inaccessible corners and then put their fingers in their mouths; they play with the cuspidors and handkerchiefs of phthisical relatives; jellies, blanc-manges and other food are left for hours, if not days, beside a coughing patient, and these, as well as all other infection lying about, are finally eaten by the children.

The only reliable statistics open to us are those based on necropsies. The results thus obtained are very striking and do not lend much support to the doctrine that abdominal tuberculosis is relatively common during the milk-drinking period. The records of several large children's hospitals for a number of years back have been analyzed by independent observers (Dr. Shennan, of Edinburgh, Drs, Still, Carr, Colman, Guthrie and others in London). The investigations concern over 2,000 necropsies, and the results in each case are strikingly similar.

It is shown in the case of children under twelve years of age dying in hospital, first, that nearly one-third of the deaths are due to tuberculosis, thus supporting the general opinion that the disease is common in childhood; but secondly, it is shown that all the age periods up to five years tuberculosis primarily affecting the lungs or thoracic glands is at least twice as common as the same affection of the intestine or abdominal glands.

After five years of age tuberculosis is much less common, and primary infection in the two cavities is more nearly equal. The most fatal period of tuberculosis is the second year of life, and this is the very period when we ought to find most evidence of primary infection through the intestine. At this age Dr. Still found 38 cases of primary thoracic infection and 15 of primary abdominal; Dr. Shennan's figures are 57 and 22. These figures show a preponderance of chest tuberculosis in the proportion of nearly 3 to 1, at an age when milk is largely drunk.

Putting together the figures of these two observers, and taking all cases up to six years of age, we get 281 primarily thoracic and 91 primarily abdominal. And if we look at the earliest period of life, under one year, we find the figures, instead of confirming the impression given by the Registrar General's reports that abdominal tuberculosis is especially fatal at that time of life, absolutely contradict it; for Dr. Still found primary chest disease in 18, abdominal in 5; Dr. Shennan, chest 21, abdominal 4. Here the figures are 4 to 1 in favor of the chest. Dr. Carr examined into the cause of 330 deaths in children, 30 per cent. of which were due to tuberculosis, and concludes: "Tuberculous disease starts much more frequently in the thorax than in the abdomen, and certainly far more often in the thoracic than in the mesenteric glands." His figures are 65.8 per cent. starting in the thorax, as against 16.7 per cent. in the abdomen. Dr. Colman says: "While not doubting the infection by milk in some cases, I am led to attach more importance to the condition of the thoracic glands, as the process was more advanced in them as a rule than in the mesenteric glands." There are two other sites beside the chest and abdomen in which tuberculosis may have its primary seat, and which conceivably may be infected either by inhalation or ingestion. One of these is the middle ear, which Dr. Still found affected fifteen times, and suggests this is really an inhalation tuberculosis, as the Eustachian tube is more closely related with the respiratory than the alimentary passages.

The other site is the glands of the neck, which probably become tuberculous by infection through the tonsils or other parts of the fauces. Dr. Shennan claims this mode of infection as due to food, but it is, in my opinion, just as probably aërial in origin, and, anyway, cannot prove very much in favor of milk infection, being probably more common in later than in earlier childhood. In 43 of Dr. Still's cases healed tuberculous lesions were found, the patient having died of some other disease. In these healed lesions the proportion of thoracic to abdominal disease was fairly well maintained, being 26 of the former to 16 of the latter. So far as the evidence goes we may say that the tendency of tubercle to become obsolescent is not decidedly more marked in the one situation than in the other.

From what has been said it must not be concluded that cases of tuberculosis in childhood can always be ascertained clinically to be of pulmonary or intestinal type respectively. Nearly half the total number appear clinically as meningitis, the primary lesion, whether thoracic or abdominal, being often latent. What is shown by the figures is that primary infection takes place far more often by the respiratory than by the alimentary passages. And just as primary chest infection is commoner than primary abdominal, so also a larger proportion of secondary meningeal infection comes from a thoracic rather than from an abdominal source. Therefore clinically, and excluding meningitis, we ought to find pulmonary phthisis more common than abdominal, and this is what they do find.

An exclusive milk theory, while it ignores the greater incidence of of tuberculosis on the lungs than on the bowels in young children, fails also to take account of other sources of infection. There can be no doubt that certain infantile diseases—measles, whooping cough, bronchitis, broncho-pneumonia—serve as powerful predisposing causes to tuberculosis mortality. They leave behind them constitutional weakness, catarrh of the respiratory passages and often of the intestinal as well. Under these conditions the widely disseminated bacilli of human tuberculosis gain a footing, attaching themselves to the most susceptible organs—in a majority of cases the lungs or their related glands, in other cases to the intestine, ear, or glands. Milk may be responsible for some cases, but the fact that thoracic tuberculosis is so common at an early age suggests the conclusion that the human bacillus (in the one case inhaled, in the other swallowed) mixed with the bodily secretions or with food, is the cause of chest trouble in one case and of abdominal in another.

Koch has told us that while secondary infection of the intestine is admittedly very common, primary infection of that tube with tuberculosis is exceedingly rare. This conclusion, however, is not in accordance with British experience as regards disease in children.

In 66 cases of Dr. Shennan's, 45 were found with ulceration of the intestine prior to infection of the glands of the mesentery; but in a minority the glands were affected with little or no lesion of the bowel, thus tending to support the view that bacilli may sometimes find their way through a mucous surface without leaving traces there of primary inoculation. It is said that in Germany the use of boiled milk is very common, if not the rule, while with us it is the exception; and this difference of treatment would, therefore, if milk be the cause of the disease, explain the greater frequency of primary intestinal ulceration among us.

There is other evidence of at any rate the occasional innocuousness of tuberculous milk. The following occurrence was communicated to the author by Prof. Clifford Allbutt, with his permission to publish the facts: Some years ago when living at Meanwood, near Leeds, he used to keep a small herd of Guernseys, among which was a prize cow he had purchased for a high price. This cow had been coughing for many weeks without any particular attention being paid to the fact, when at last it was noticed that her milk did not look right. On examination disease of the udder was found, no doubt at an advanced stage, seeing that the milk was noticeably altered in appearance. The milk contained swarms of tubercle bacilli and had been consumed, mixed with that of the other cows, for a long period by over twenty persons, ten of these being children. This disclosure naturally gave Dr. Allbutt considerable anxiety for a time. But he says, "No one was one penny the worse except myself for the loss of my pedigree cow."

From instances like the foregoing it is difficult to draw any general conclusion as to the danger of drinking tuberculous milk. The evidence, however, tends to show that such milk is not highly infective when diluted with the milk of healthy cows, and that some persons are likely to show a much higher degree of susceptibility than others. Nocard, an eminent French authority, quotes several cases of tuberculosis of the intestines in young persons traced with a high degree of probability to milk, but he also says, "Ingestion only succeeds in giving tuberculosis when the ingested material is very rich in bacilli."

THE DANGERS OF MEDULLARY ANESTHESIA.

Dr. A. H. Burgess (*Medical Chronicle*, Feb. 1, 1902) writes as follows: At the Congress of the German Society of Surgery, April, 1901, Bier reported the results of his attempts to prevent the ill-effects of this method, e.g., intense and persistent headache, vomiting, vertigo, insomnia, anorexia, rigors and fever. He has seen collapse, incontinence of feces, and even death supervene at the operation itself. Assuming that these untoward effects are produced by the action of the cocaine on the brain through the medium of the cerebrospinal fluid, Bier attempts to prevent them by producing a cerebral hyperemia, thereby driving out a quantity of cerebrospinal fluid from the cranial cavity. He places an elastic ligature moderately tightly around the neck and so obstructs the venous return. He has therefore succeeded in diminishing to some extent these ill-effects, but not in abolishing them. The use of very dilute solutions of cocaine gave no better results. Schwartz advocates the advantages of "tropa-cocaine," which in doses of 4 to 5 cg. produces complete anesthesia of the lower limbs in fifteen minutes, and without any evil consequences.

Legreu, at the October (1901) meeting of the Surgical Society of Paris reported two cases of immediate death from rachicocainization. The first was that of a man, 54 years of age, who was operated upon for a rupture of the quadriceps tendon. Three or four minutes after the operation commenced the patient complained of a choking sensation, uttered a few

groans, became convulsed and died immediately. No autopsy was permitted. The second case was that of a man, aged 61 years, the subject of a strangulated hernia, who had always enjoyed excellent health previously. Soon after the injection, and before operation could be begun, he became very pale, had difficulty in breathing, commenced to vomit, and died from progressive respiratory failure.

At the Fourteenth Session of the French Congress of Surgery, October (1901), Guinard, of Paris, pointed out that the ill-effects of rachicocainization must be due to one or other of the following factors:

1. The injury inflicted on the meninges by the puncture of the needle.
2. The introduction of the water serving as a vehicle for the cocaine.
3. The introduction of the cocaine itself.

His assistants, Ravaut and Aubourg, examined the cerebrospinal fluid some hours after the operation in several cases of medullary anesthesia and found that the more intense were the ill-effects the greater were the changes produced in the fluid, which became turbid, and contained small masses of polynuclear elements and lymphocytes. From simple puncture of the meninges with an aseptic needle, without injection of any substance, no changes in the cerebrospinal fluid were ever observed. In two cases of inoperable cancers causing intense suffering Ravaut injected through a lumbar puncture 2 c.cm. of pure sterilized water into the subarachnoid space. No anesthesia was produced, but a few hours afterwards intense headache and fever supervened in both patients and on withdrawing a little cerebrospinal fluid for examination it was found to be cloudy and to contain a large number of polynuclear cells. The obvious conclusion is that it is the introduction of the water, serving as a vehicle for cocaine, which is the essential factor in the production of the evil after-effects of medullary anesthesia. Acting on this, Guinard utilizes the cerebrospinal fluid of the patient himself as a vehicle for the cocaine; he makes the lumbar puncture as usual, allows 60 to 80 drops of cerebrospinal fluid to escape into a sterilized vessel, adds to this 6 to 7 drops of a concentrated solution of cocaine (2 drops containing 1 cg.), aspirates the whole into a sterilized syringe, and injects it slowly through the needle. He has performed this in 50 cases and has never yet seen a single ill-effect.

A CASE OF ANKYLOSTOMIASIS (UNCINARIASIS) OCCURRING IN A SAILOR.

Dr. J. B. Greene, U.S. Marine Hospital Service, Staten Island, N.Y., writes as follows to the *N. Y. Medical Journal*, May 15, 1902:

The increasing frequency of ankylostomiasis in this country, probably on account of our closer relation to the tropical islands, and the importance of being on the lookout for this disease prompt me to report a case at this time. It was formerly supposed to be confined to certain geographical areas, such as portions of Continental Europe, Egypt, the West Indies and Brazil; but so far as climatic conditions are concerned, there would seem to be no reason why the United States should continue to

enjoy immunity from the effects of this parasite. Most of the cases reported have been in patients who work in soil, such as tunnel-diggers, agricultural laborers, and such like. The infection was supposed to take place through the hands. This case is, so far as I can learn, the first occurring in a sailor:

G. K., aged 23, a native of Finland, was admitted into the U. S. Marine Hospital, Staten Island, N. Y., on October 30th. The patient's family history was good—both parents living and healthy. He had never had any serious illness, though three months previously he had been sick in Jacksonville, Fla., with an illness that was probably malarial. Six months prior to his admittance into this hospital, the patient was on the coast of Brazil. He then returned to Florida, and since July last, three months before coming to this hospital, has been making frequent trips between the Maine coast and New York City.

On admission he complained of considerable pain in the epigastric region, especially on the left side. The bowels were loose. The patient presented the appearance of one suffering from severe anemia. The mucous membranes were pale, the skin was of a yellowish hue and there was apparently no diminution of adipose tissue.

Blood examination showed red corpuscles 3,440,000; white 45,000 and hemaglobin 44. Physical examination showed a weak first sound of heart, though no murmur was detected. The spleen was palpable.

The patient's temperature ranged in the region of 38° C. (100.4° F.), irregular during the first week in the hospital, although he was receiving full doses of quinine. His bowels continued loose and apparently uninfluenced by a diarrhea mixture containing opium. There was noted, too, an increased tendency to movements of the bowels during the night. The discharges contained mucus and colored areas resembling altered blood.

An examination of the feces revealed at once a large quantity of elliptical ova, typical in appearance of the eggs of *Ankylostomum duodenale*. The patient was next placed on a restricted liquid diet and given a saline purge followed by two doses of thymol, 1.5 grams (22½ grains) each. An examination of the feces failed to reveal any signs of the parasite. After waiting a few days, male fern was given with the same precaution, and no worm was discovered. Shortly an examination of the feces failed to reveal ova, so it is probable the patient, contrary to instructions, evacuated his bowels in the water-closet and the worm thus escaped our detection. The patient began to improve and insisted on leaving the hospital, though not fully recovered, on December 3d, about five weeks after his admittance. His blood count showed red corpuscles, 3,999,500; white corpuscles, 11,000, and hemoglobin, 55. His general condition was much improved, and he had no fever or intestinal disturbance.

PYLORIC STENOSIS IN INFANTS.

E. W. Saunders (*Arch. of Ped.*, April, 1902) says: The clinical phenomena are fairly uniform and typical, and the diagnosis offers little difficulty in the later stages.

After a certain interval from birth, varying from a day to three months, the infant without apparent cause begins to vomit. This is usually attributed to simple indigestion or to some fault in the mother's milk. Under careful regulation of the diet and the administration of antemetics improvement, if it occurs at all, is only temporary. The vomiting becomes worse and is projectile. Large quantities of milk are thus ejected, more than can be accounted for by the previous feeding. Obstinate constipation ensues. The infant more or less rapidly loses in weight.

The physical signs may be entirely negative in the beginning. A palpable tumor at the pylorus is exceptionally found. Progressive dilatation of the stomach occurs. On inspection of the abdomen the upper zone will be observed to be bulging, and contrasts strikingly with the depressed lower zone. The bulging of the epigastrium subsides visibly after a paroxysm of vomiting. Peristaltic waves are visible over the epigastrium after the abdominal walls become attenuated.

Examination of the gastric contents reveals the fact that the stomach does not empty itself in one or two hours. In some cases hydrochloric acid is in excess, but more often it is diminished or almost absent.

Coincidently with the gastric dilatation, the signs of gastric catarrh may become manifest. The contents of the stomach show evidences of decomposition; the organic acids, lactic and butyric, being present. Large quantities of mucus are vomited, perhaps once in 24 hours, or once in two days. The condition of the infant grows steadily worse, the distress is more severe and the fatal issue is inevitable.

Such, in brief, is a clinical picture of this disease in its worst form. Post-mortem the pyloric lumen is stenosed to a varying degree. The hypertrophy at the pylorus is composed principally of circular muscular fibers; but the longitudinal layer, the mucous and sub-mucous coat also partake of this overgrowth.

The pyloric opening varies in size, but the diameter of the canal at the necropsy is hardly a fair measure of its possible size during life. The muscular wall of the stomach is also very much thickened.

Pathogenesis.—This is unknown. Cautley believes that the condition is due to a congenital redundancy, or a prenatal overgrowth of muscular tissue.

Thompson believes that the trouble is a functional disturbance of the nervous system leading to a spasm and secondary hypertrophy of the pylorus. Pfaundler claims that the condition is primarily a spasm, and the hypertrophy is overestimated on account of the extreme contraction. As has been said, "It seems reasonable to combine these views so far as to believe that there is some congenital hyperplasia of the pyloric sphincter and that spasm supervenes upon this, and is largely responsible for the symptoms manifested.

Treatment.—Medicinal and dietetic measures should, in all cases, be first employed. The indications are as follows:

1. The administration of some medicinal agent which shall overcome to a greater or less extent the violent contractions of the pylorus. Among the drugs to be recommended are belladonna, bromides and chloral. Opiates should not be given as the motor function of the stomach is thereby impaired.

2. The treatment of the secondary gastric irritation. This results from the stagnation of food and should be treated by washing out the stomach and by giving the stomach rest; rectal feeding should therefore be resorted to from time to time and for 24 hours or more nothing but water given by the stomach. When food by the mouth is again allowed, the stomach should be washed out occasionally to remove a possible residuum of undigested food.

3. The diet of the child should consist of food which forms no coagulum in the stomach. This point has not been sufficiently insisted upon. Milk or any food containing undigested casein will not answer, consequently the mother's milk is usually unsuitable, while the milk of a wet-nurse in advanced lactation will succeed. Whey or peptonized milk, or a mixture of both, is generally the best food. The deficiency in fat should be supplied by cod-liver oil. A very small percentage of cream can be gradually added. If the coagulum formed by the cream causes distress or increases the vomiting, it must be completely predigested. A mixture of whey and predigested milk perfectly agreed with the patient named. It is well to aid the motor-power of the stomach by gravity, hence, after nursing the infant should be placed on its right side. If the diet is perfectly fluid some nourishment will pass through the pyloric opening.

The end to be accomplished is hypertrophy of the gastric wall without dilatation, hence the quantity of food should not be large. Gaseous distention of the stomach should by all means be prevented.

When it is seen that the infant is failing in spite of rational treatment surgical intervention must be advised.

As to the method of operation, we must leave the decision entirely with the surgeons, until sufficient material is furnished on which we can base some conclusions.

Schmidt has added a third case to the two successful operations recorded by Nicoll and Abel respectively. He performed a digital dilatation, but whether he opened the stomach, or simply invaginated the wall, as advised by Hahn, the reporter does not say.

PEDIATRICS

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EDITORIAL COMMENTS

Recent Researches in Respect of the Bacterium of Syphilis

Since Lustgarten's announcement, in 1884, of the discovery of a "bacillus of syphilis" scientific men have been at work almost constantly upon the question of the microörganism of syphilis. The results till last year have been entirely negative. Lustgarten's work was never completed to anyone's satisfaction, and it has never been proved that Lustgarten's bacillus is not identical with the *bacillus smegmatis*. Eve and Lingard, in 1886, Disse and Taguchi in the same year, and Golasz in 1894 have all failed to establish their claims or gain any serious recognition.

In July, 1901, however, an announcement of unusual significance and promise was made before the Paris Academy of Medicine by Justin de Lisle and Louis Jullien (*Bulletin de l'Academie de Medecine de Paris*, July 2, 1901). Lisle and Jullien chose as the starting point of their investigations the classic experiment of Pellizari, in 1868. By Pellizari, it will be recalled, three young men were successively inoculated from a woman "in full flower" with the secondary accidents of untreated syphilis. The first took syphilis; the second and third did not. No explanation of this fact was apparent till the recent discovery of the bactericide alexin liberated from the leucocytes in clotted blood, which, as appeared to the writers just mentioned, might have killed the syphilitic germ in the interval elapsing between the first and second inoculations.

Proceeding on this assumption they devised a method of growing the suspected organism in blood deprived of its leucocytes and hence of its alexin immediately after drawing. An exact method of procedure was at first difficult, but the writers finally succeeded in isolating a bacillus which grows on numerous media, stains well with gentian violet and carbol-fuchsin, ill with methylene blue, and not at all by the Gram method.—The germ grows remarkably on amniotic fluid.

Cultures injected into laboratory animals caused rapid death, but as might have been expected, post-mortem liberation of alexins killed the germs and the cadavers were found always sterile.

Most interesting and important fact of all, the blood of cases of secondary syphilis, untreated with mercury, made a perfect *agglutination* of the cultures, while no other blood was ever found to do so. Inoculation of the germ into syphilitic subjects gave no result. We understand that Dr. deLisle has of late greatly improved his method of isolating the bacillus from the blood, and that he expects shortly to make another and convincing communication on the subject.

Following upon this paper and apparently relating to the independent discovery of the same germ, is the paper of Dr. Max Joseph and Dr. Piarkowsky in the *Berliner Klinische Wochenschrift* for March 24 and 31, 1902.

The starting point of Dr. Joseph's work was the fact that the sperm of a man infected with secondary syphilis retains its capacity to transmit syphilis in the offspring even after the patient has been apparently long cured.

Sterile sperm was inoculated upon sterile bits of fresh placenta. On the first day small "dew-drop" colonies could with difficulty be made out. These subsequently turned gray and became confluent.

Some of the colonies contained staphylococci only; some, however, contained a bacillus corresponding in many ways with the bacillus of Lisle, though there is no mention of the results of the Gram stain. Inoculations from the placenta colonies on the agar-slant, on urine-agar, and on blood serum

grew, though the sperm itself upon these media remained sterile.

Experiments were made upon 22 patients,—cases of from ten months' to three and a half years' standing. The germ was found in all in whose spermatic fluid *spermatozoa* could be demonstrated. Agglutination was also observed with this bacillus, and inoculation was made into swine with positive result. The authors make no extravagant claims but express the hope that the field thus opened may be exploited in other parts of the world and by other observers. Meanwhile we await the final outcome with more than usual interest. B.

Sub-Stations of the Board of Health

The sub-stations of the Department of Health have proved of the greatest value to the doctor in enabling him to have quick, accurate and scientific diagnoses made for him, free of cost, in certain contagious and infectious diseases. The establishment of such stations has beyond question done much to elevate the standard of medical practice in this city. There is, however, an aspect of the case to which we would like to call attention. It seems that these sub-stations exist in various drugstores solely by the courtesy of the proprietors. Many of these druggists maintain that the commissions allowed on sales of sera and vaccine virus come far short of compensating them for the trouble of maintenance. The consequence is that many of them do not take the trouble to keep up supplies. This failure on their part is often the cause of vexatious loss of time to the practitioner. For example, recently at one sub-station the blood-serum tubes for making diptheria cultures were all dried up and useless; at another, although the tubes were in good condition, there were no swabs; at another 6,000 units of antitoxin even not on hand and the physician had to wait until it could be procured from headquarters. We call attention to this minor matter in the hope that some remedy may be found, for the greater the facilities for having such examinations made, the more likely is the average medical man to have them made. T.

ORIGINAL ARTICLES

REPORT OF A CASE OF CEREBROSPINAL MENINGITIS, PROBABLY DUE TO THE PNEUMOCOCCUS, FOLLOWED BY RECOVERY.*

FREDERICK KRAUSS, M.D.,
Ophthalmologist to St. Christopher's Hospital Dispensary.

T. H., aged 3½ years, on February 2 presented the following history: Father for several years has suffered from fibroid phthisis (numerous tubercle bacilli in sputum) and from neurasthenia. The mother is apparently healthy; one half sister is living and well; one brother died of cerebrospinal meningitis.

Ever since three months after birth the child has been a poor feeder; was bottle-fed, and has never eaten table food, the whole diet being ordinarily milk and rarely crackers.

Two weeks ago he had what the homeopathic physician in attendance called a "measly rash,"—"a form of erythema." This eruption lasted three or four days, then completely faded, and the child was allowed to go out a few days later. Four days ago the mother noticed that the baby had a sore mouth and used listerine as a wash. Two days later, as the disease showed no improvement, she called in the homeopathic physician who had formerly treated him. On the evening of the 31st the child was very feverish and prostrated, and remained so sick that on the evening of February 2, 1902, the parents discharged the physician and I then saw the case.

The patient was extremely prostrated but fully conscious; the skin and conjunctiva were very pale; the lips, especially the upper one, were intensely chemosed, covered with a membranous exudate, bleeding freely upon touch; the upper lip was much everted and almost in contact with the nose; the gums were spongy, bleeding upon touch; the tongue was deeply coated, and the breath fetid. On the left anterior arch

* Read before the Philadelphia Pediatric Society, April 8, 1902.

of the palate extending to the soft palate was a superficial ulcer covered with the same character of secretion as was seen upon his lips. There were in addition several small isolated ulcers throughout the mouth and pharynx.

The nares were blocked with a thick mucous discharge; the odor was extremely offensive and penetrating, so much so in fact that the patient had been moved to and from adjoining rooms at short intervals to allow frequent airing of the rooms. The axillary temperature was 104.5°,the pulse 140, respirations 28. The lungs were apparently normal after careful inspection, palpation,percussion and auscultation. The heart was normal, as was apparently the gastrointestinal tract.

The patient was placed upon a modified milk diet and given bichloride of mercury gr. 1-48 and hydrogen peroxide with tincture of iron every two hours. Glycothymoline was used as a local application to the lips and mouth. Orange juice was given freely.

February 3.—Temperature continues high, varying between 104.5° and 105.4°. The ulcers in the mouth are clearing and show signs of healing; swellings of the lips and gums are less pronounced; the prostration continues to be extreme, though the child remains conscious. Continual sponge baths of alcohol and water appear to have no effect upon the temperature. On account of offensive stools the colon was flushed with creolin solution.

February 4.—The condition of patient remains stationary, the temperature varying from 104° to 105.6°; ulcers are better; culture made from throat (membranous ulcer) is absolutely sterile. Colon was again flushed with normal salt solution. Dr. J. P. Crozer Griffith saw the case in consultation. The chest was apparently free of signs of inflammation.

February 5.—Patient became unconscious; temperature remains very high, pulse 135, respirations 32. There is some rigidity of the muscles of the neck, the toes are turned strongly in; the knees are flexed, and the pupils contracted. The patient remained comatose all night, coughing slightly at long intervals. The odor from the mouth has entirely disappeared; ulceration almost gone; culture of throat again sterile.

February 6.—The head is strongly retracted, with extreme rigidity of muscles of neck and back, so that attempt at lifting patient's head results in lifting the whole body. There is extreme contraction of all the muscles of both hands and

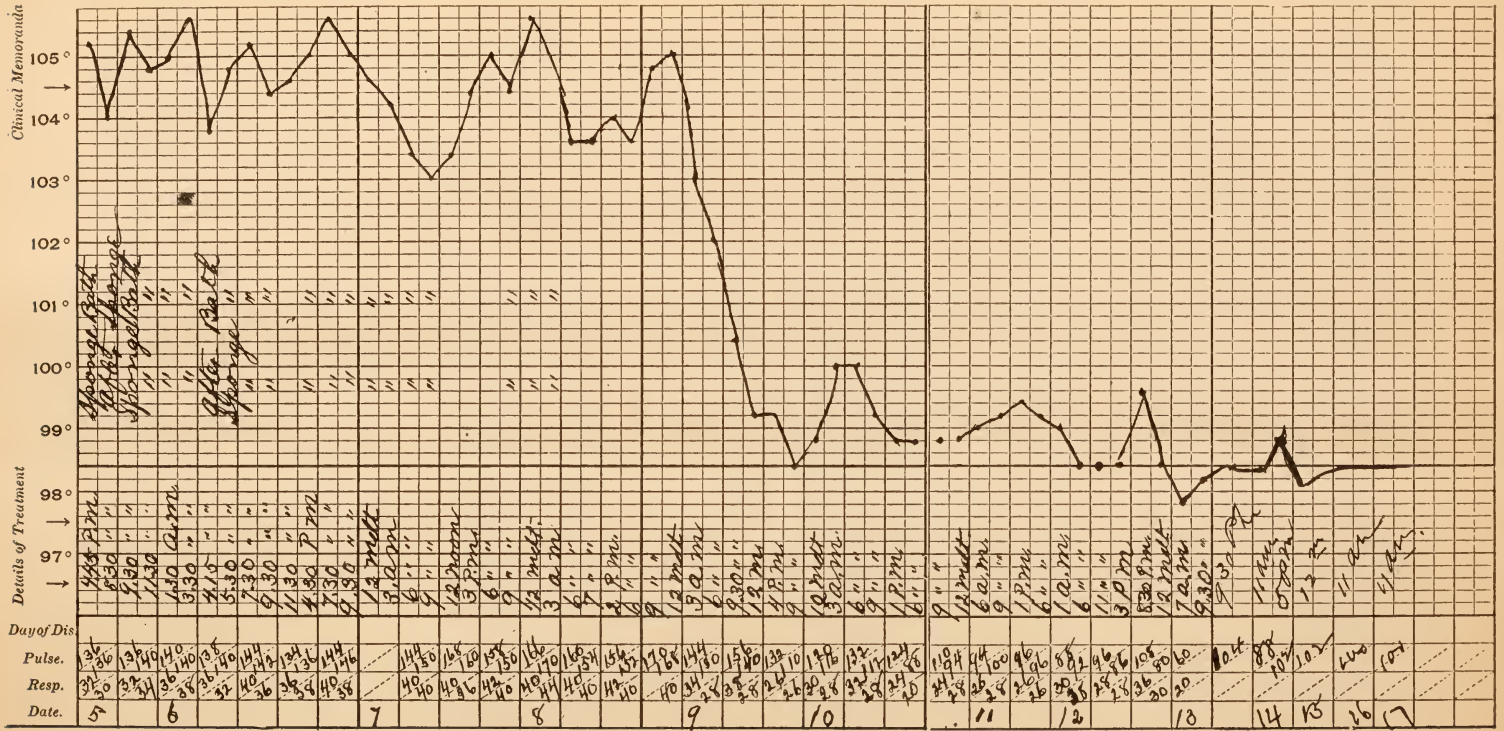
arms; the arm and forearm strongly flexed, the wrist extended and the terminal phalanges of the widely separated fingers are flexed. The same conditions hold true in the lower extremity; the foot is turned rigidly down and in; the knees are flexed; the muscles are so rigid that extension is almost impossible; the pupils are equally contracted but react slightly to light.

February 7.—The rigidity of the muscles of the body is becoming more intense and is accompanied by universal muscular twitching which is almost continuous. Cheyne-Stokes respiration is very marked, the respiration almost ceasing at times; the extremities are cold, though temperature remains continuously high; the pulse is almost imperceptible—168 per minute; respirations 36 to 40, the patient being cyanosed and gasping for breath; heart sounds are extremely weak; the urine, by catheterization, shows a small amount of albumin.

February 8.—He had several free watery movements of bowels; he lifted his hand to his face and became partially conscious for a few moments only and this was the first voluntary movement that patient was able to make; he cried almost continuously and was extremely restless. Previous to this he had been lying quietly in a state of absolute coma. The temperature was somewhat less—103.5° to 104.5°, though the pulse still ranged about 160 per minute in spite of 6 drops of tincture of digitalis every two hours. At midnight the temperature was still 105° but began to fall immediately afterward by rapid crisis, so that by 9.30 a.m. of February 9th the temperature was 99.2°, the pulse 156, respiration 38. A large, watery stool occurred at 4 a.m. The patient slept quietly from 1 to 7 a.m. Upon awaking he was conscious, recognized and tried to talk with his mother. He was able to move the left hand up to his face only, the rest of the body still remaining rigidly contracted.

Two days later the patient was able to move the right hand slightly and was perfectly conscious and intelligent, but still unable to speak. This seemed to annoy him very much, as he understood all that was spoken to him. Later in the day he was able to draw up the left foot. Any attempt to forcibly overcome the rigidity of the arms or legs was apparently attended with much pain.

On the next day the patient had full use of the right hand and could move both feet, the ankles being still strongly turned down and in. He was still unable to articulate or protrude the tongue.


Clinical Memoranda
Details of Treatment
Day of Dis.
Pulse.
Resp.
Date.
105°
104°
103°
102°
101°
100°
99°
98°
97°
40°
39°
38°
37°
36°
35°

On the fourth day after the crisis he was able to articulate with difficulty, halting between words. The feet were still contracted.

From the eighth to the eighteenth day after the crisis had occurred there appeared loud systolic murmurs at the apex of the heart, transmitted to the axilla and at the aortic cartilage, transmitted to the carotids. These murmers after the tenth day of their appearance gradually diminished and have now disappeared. The patient has fully recovered and has full use of his body and faculties.

The treatment was stimulating, *pro re nata*, the patient taking as much as 63 drops of tincture of digitalis and 12 drops of the usual 1 per cent. solution of nitroglycerine in 24 hours, in connection with panopeptone.

Just before the crisis occurred the patient was taking:—

Panopeptone. .... ℥iv
Tinct. digitalis..... gtt. viii
Nitroglycerine..... gtt. i

every two hours, and bromide of potassium, gr. xv, every two hours if required.

As further sequelæ there appeared an acute otitis media of the left side and numerous corneal ulcers, phlyctenular in type, also of the left eye, from all of which the patient recovered fully after appropriate treatment was adopted.

In the study of this case it would appear that there was a general infection, probably by the pneumococcus, at first affecting the mucous membranes of the mouth and nose, to some extent possibly of the lungs, though not physically apparent, extending to the gastrointestinal tract and finally to the meninges.

On the tenth day the crisis took place, probably due to the formation of an antitoxin, as is usual in pulmonary infections of the pneumococcus. As the several cultures were sterile, and as no puncture was made for cerebrospinal fluid, an absolute diagnosis is impossible.

This case would also seem to indicate that courageous stimulation will sometimes carry the apparently moribund child through an unexpected crisis, and forcibly teaches us again that "while there is life, there is hope."

A REVIEW OF SOME INTERESTING WORK ON INFECTIOUS DISEASES.

By John Ruhrah, M.D.,

Associate Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore, Md.

BEFORE the Medical Section for the Diseases of Childhood at the Thirteenth International Medical Congress held in Paris in August, 1900, M. Grancher, Professor of Diseases of Children, of the Paris Faculty, presented a remarkable paper which, so far as I know, has not received much attention in the American medical journals.

M. Grancher's paper is short and to the point and contains some truths concerning the transmission of infectious diseases that are worthy of further study. It deals with his own experiments made in his wards at the Hôpital des Enfants Malades. Having had an opportunity of seeing these wards, I feel sure that a review of the work will be of interest.

Ten years ago M. Grancher wrote the following sentence: "The prophylaxis of contagious diseases is one of the most interesting questions of contemporaneous medicine. In the hospital, in the home and in the family the question is posed in about the same manner. It deals with the protection of the neighbors of the patient, those who nurse him and surround him, from contagion. It deals also with the protection of the patient himself from his neighbors and himself in avoiding the secondary infections which are always so formidable. For this we have two means: *isolation* and *antisepsis*."

After having written thus he proceeded to try some very interesting experiments along this line. Arguing that surgical and obstetrical infection had been reduced to a minimum by the adoption of a suitable technique, he proceeded to develop a medical technique, and as a result he has come to the following conclusions:

Antisepsis and with it isolation of the patient, even if imperfect, gives excellent results. Without antisepsis, isolation, even if individual and in separate rooms, does not stop contagion.

This gives good results for all infectious diseases except measles and chickenpox. In measles and chickenpox the infections are diminished in the proportion of three to one.

Air infection does not exist where the children do not expectorate and where the dust is suppressed. On the contrary, infection is by infected objects, that is to say, by contact, direct and indirect.

In order to avoid infections it is necessary to purify immediately the hands and objects soiled by contact necessary in the examination and care of the patient, and secondly to diminish contact with children with infectious diseases and with those supposed to be infected.

The service of M. Grancher has been organized since 1888. He does not remove cases of infectious diseases developing in his wards to the infectious pavilions, but treats them in the same room with the other patients with astonishingly good results.

This he could not do did he not have very faithful assistants and nurses and those about him who are interested in the success of the work. Without assistants of a like devotion such a plan would work havoc in a hospital.

The first care was the suppression of dust. To do this the floors are paraffined and are washed twice daily with a solution of sublimate. The walls are painted and are washed twice a week with sublimate solution.

The second care is the isolation of the patient. In order to accomplish this a metal screen 1.25 metres high surrounds the bed. One end is left open so that it may be entered. On entering the screen both physicians and nurses are gowned, and on leaving, the hands are disinfected by washing with soap and brush and the using of a 1-1000 solution of sublimate; the gowns for each patient are hung on the screens of the respective beds. All mattresses and bedding are sterilized by steam, and all the linen and articles used for feeding are boiled in water. The food is served on wire trays having a handle. On these trays are placed the bowl and saucer, knife, fork, spoon and napkin. After feeding the whole is placed in a pot of water with a little carbonate of soda and boiled for five minutes. This gives a temperature of 103° C. The beds are of iron and are disinfected by scrubbing with an acid solution of sublimate and a brush.

It is interesting to note that the nurses handle all cases, both infectious and non-infectious. To start with there was a separate nurse for the contagious cases but later on it was found that the work of the ward required her assistance so all the nurses were allowed to wait on the infectious cases. All of them naturally take the same rigid precautions. Some of the cases developing in the hospital were due to the fact that the night service was rendered by the youngest nurse in the ward and also that there was but one night nurse.

A number of infections could be directly traced to importations by visitors. In order to avoid the introduction of contagion by new cases all the children are regarded as suspects and are isolated behind screens just like the contagious ones. If at the expiration of twenty days they have not developed anything they are released.

The results of this means of caring for contagious cases may be briefly summarized as follows:

Measles.—During 1885, 1886 and 1887 there was an average of 36 cases of measles developing in the wards. During the decade following under the special precautions the annual average has been 11. Without giving the detailed figures it may be stated that the coefficient of infection for measles where special precautions were taken was 0.01. For the other wards of the hospital it was 0.02 or 0.03. The decrease of infections with the special precautions was about 3 to 1.

Varicella.—This disease, with about the same contagiousness as measles, shows about the same result.

Diphtheria.—Here the results are very remarkable. Previous to the careful work of isolation and antisepsis there was an average of 12 infections in each of two wards per year. Afterwards, during the next ten years, in one ward there was not a single case of infection and in the other ward there were only 6 cases, 5 of which were imported by visitors. In other words, infection from the cases of diphtheria was practically done away with. It must be understood that there were cases in the ward during these ten years but they came in either as developed cases or during the stage of incubation.

Scarlatina.—In four ordinary wards during ten years there were 99 cases of scarlet fever. In the two wards where the experiments were tried there were only 7; three of these were importations. Scarlet fever infection was therefore practically controlled.

Whoopingcough, Mumps and Bronchopneumonia. — All three of these were practically entirely suppressed.

SALLE BOUCHUT.

Table for Ten Yearz, 1890-1899.

Disease.	Cases Entering in Incubation or Evolution.	Contagious by Importation.	Contagions in the Service.	Totai.
Measles	66	9	13	22
Diphtheria	26	5	1	6
Scarlatina	13	3	2	5
Whoopingcough	154		4	4
Bronchopneumonia	138			
Varicella	57	4	13	17
Mumps	15		1	1

SALLE PARROT.

Table for Ten Years, 1890-1899.

Disease.	Cases Entering in Incubation or Evolution.	Contagions by Importation.	Contagions in the Service.	Total.
Measles	75	6	51	57
Diphtheria	17			
Scarlatina	6	1		1
Whoopingcough	203		3	3
Bronchopneumonia	102			
Varicella	72		22	22
Mumps	8			

These results are very much what we might have anticipated for the most part. The notable exception is whooping-cough, where it has been the experience of most observers that the contagious principle was diffused through the air and

where cases have been reported of infection in the open air without direct contact.

Along the same line of work in infectious diseases is the new hospital at the Pasteur Institute in Paris. In this the various diseases are received in the same building, but there they are managed with room isolation and strictest antiseptic precautions. At the time of my visit, seven months after the installation of the plan, there had not been any cross infections in the patients after they had been admitted to the hospital. The cases of measles were kept entirely separate from the others. If I am correctly informed no cases of chickenpox had been admitted. There had been, however, a large number of smallpox patients received and treated.

Milk Percentage.

The method here given by Freeman is summarized as follows: "This method of obtaining percentages in modifying milk is simple and is applied as follows:

1. After having decided on the number of feedings for the 24 hours, the amount to be given at each feeding, and the formula of the food required, first determine the desired relation between the amount of fats and proteids, and obtain a cream or milk in which these constituents exist in that proportion.

2. Dilute this cream or milk with the required amount of water.

3. Determine the percentage of sugar required for 24 hours' feeding and order the same in packages contained the required amount.

4. If limewater is added, the amount so added must be deducted from the amount of water used.—*Jour. A. M. A.*

IMBECILITY CONSEQUENT UPON AN INFECTIOUS DISEASE.

By H. Illoway, M.D.,
New York City,
Formerly Professor of Diseases of Children, Cincinnati College of Medicine and Surgery, etc.

CHARLES R., the fifth child of his parents. All the other children are normal and in good health. There was nothing unusual connected with the delivery of this child; aged 4 years and 9 months; a well-nourished boy, of ordinary size; for his age sufficiently large and of about the usual development. *Imbecile, mute.*

At birth he was the ordinary infant and made the usual progress. Teething began late, and he was 15 months old before his first tooth appeared. At 18 months he began to speak —he was in all respects as other infants and progressed as they do. As he grew older the parents observed that though he acted as do other children, played as do other children and with them, he nevertheless differed from them in this regard, that he could not be taught to call the attention of his mother that he must pass his urine or that his bowels wanted to move. He discharged the excretions into his clothes. He continued thus till March, 1901, when he was taken ill with what was said to have been (by the physician in attendance) scarlet fever. He was in bed for three days and had a high temperature. During this time he would take nothing but seltzer water, and of this he drank freely. On the fourth day he got out of bed and played about the room.

His parents now noticed a certain degree of amnesia in him. He had difficulty in recalling the proper word, though after some thought (perhaps better, interval) he would find the term wanted and pronounce it distinctly. Gradually, however, his speech became more and more indistinct and finally seemed abolished altogether—*he spoke no more.* In other respects also his memory seemed much weakened—there had been a marked deterioration in intelligence.

Status praesens.—He grins and laughs like an imbecile, he is never quiet, keeps moving about all day, running hither

and thither about the rooms or the street. Then, again, he pushes things about the room—now the table, now the chairs or boxes, first one thing then another; if the articles happen to be fragile he breaks them. He passes his urine and feces in his clothes in an apparently unconscious way and does not seem to mind the soiled garments.

It is difficult in his state to determine whether *he hears or not*, but, on the whole, it seems to me that he has hearing. Thus when he was in the office some days ago he cried continually and ran to the door and took hold of the knob as if he wanted to get out; his father brought him back and said to him, "shake hands with the doctor and then we will go." He came to me at once, offering his hand, and when I had released it he turned and walked again to the door.—A certain degree of intelligence is certainly preserved. This is shown by the fact just related and by the further fact that when he wants to eat he runs to the pots and boxes wherein food is kept and helps himself to whatever he can lay his hands on. Once while in the office, and bellowing as usual, his father sought to quiet him, by taking a cake out of his pocket and giving it to him. He took it but at once ran over to his father and dipped his hand into his pocket and extracted another cake, and then explored the other pocket for still more. When he is given a penny he runs out to the neighboring candy-shop and gets candy for it.

He eats very heartily; he sleeps well and quietly; when walking he keeps his head bent forward and downward; his eyes roll about constantly, and what, with his restlessnes, it was impossible to get him to hold still long enough to have a look at them; the pupils seemed widely dilated.

The only other feature that would attract attention are the *very large ears* that stand out straight from the head.

MEASUREMENTS OF THE HEAD.

From the base of one ear to the other, 29 cm.

From one side to the other across at vertex, 18 cm.

From the root of the nose to the base of the occiput, 33 cm.

Circumference (around and about frontal bos), 50 cm.

There is no doubt in my mind that a certain degree of mental feebleness existed already from birth. This is borne

out by the fact that it was impossible to impress upon him the necessity of cleanliness of person, something which the normal child readily and easily learns.

That the imbecility was rendered complete by an attack of scarlet fever there can be no question. The history is very clear upon that point. But in what way?

Apparently not in the usual way, by an inflammation of the cerebral structures that occasionally follows in the wake of the various infectious diseases—scarlet fever, measles, smallpox, etc., for the history of the ailment, the brevity of the febrile period, all preclude such an etiology. He had no meningitis.

The only explanation that suggests itself is that in consequence of the general infection the nutrition of the cerebral tissue and structures suffered such injuries as to have resulted in the present state of complete imbecility.

Corrosive Sublimate in Pertussis.

C. Calabro, according to the *Med. News*, treated 56 cases by painting the throat with the following solution:

℞ Hydrarg. chloridi corros.....gr. iii
Sodii chloridi.....gr. i
Aquæ destil.....Oi

M. Sig.—Paint well over the pharynx, epiglottis and tonsils with a soft long-handled brush three times a day.

The author advises that the patient be fed before painting to prevent irritation of the empty stomach by the small quantity of the solution which is swallowed during its application. Of the 56 cases he states that 39 were cured with one daily application and 17 of the cases received three treatments daily in addition to other remedies commonly used in pertussis.—*Jour. A. M. A.*

SOCIETY REPORTS

PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, March 11, 1902.

The President, Dr. Samuel Mc C. Hamill, in the Chair.

Dr. John Lovett Morse, of Boston, addressed the society, by invitation, on **Some Disorders of the Kidneys and Bladder in Infants.**

Dr. J. P. Crozer Griffith said that for some time he had been investigating more carefully the condition of the urine, and had become thoroughly convinced of the frequency of renal disorders in infants and children. He particularly directed attention to the fact that, as was noted by Jacobi and Holt, death in cases of gastroenteritis is in a considerable number of instances actually due to a terminal nephritis with uremia.

He thought it very important also, as Dr. Morse had said, to remember that convulsions in infancy are not infrequently uremic. The convulsions do not differ in their clinical appearance from their usual forms, and the fact that they are due to uremia very readily escapes one unless in such cases examination of the urine is carried out as a routine procedure. He mentioned a case which had recently been brought to the Children's Hospital with convulsions, apparently of a reflex nature and with the usual fairly favorable prognosis. Examination of the urine, however, showed the presence of albumin and casts in large amounts. Death resulted.

A secondary nephritis from infectious diseases is also a very important matter, not only in connection with scarlet fever and diphtheria, in which it is generally known to occur, but also in certain other infectious diseases in which it is less commonly recognized that nephritis may frequently, even in infancy, be a complication. Even such a mild affection as varicella may be in rare instances complicated by nephritis. A form of severe nephritis accompanying influenza has also been

described. Since January 1st there had been a large number of cases of typhoid fever in the Children's Hospital and only one of these cases had proved fatal. This child had a complicating pneumonia, but also had an acute nephritis; and the latter was thought to be a very important factor in the production of the fatal issue. Dr. Griffith also referred to several cases of pneumonia in which nephritis had been determined to be present; and likewise spoke of a case of nephritis with edema due to congenital syphilis, which had been reported by Dr. Newcomet and himself. This occurrence is apparently rare, although several cases had been collected from the literature a few years ago by Audeoud.

Dr. Griffith also emphasized Dr. Morse's statement, that edema is not a characteristic sign, either from the positive or from the negative standpoint. It may occur in other conditions; it is especially likely to be seen in marantic infants who may be quite edematous—particularly about the hands, feet and face—and yet show no albumin whatever in the urine. On the other hand, edema may be entirely absent in nephritis.

Dr. Griffith's own experience agreed with that of Dr. Morse as to the occurrence of hematuria in scurvy. He had reported one case that was an instance of the fact that hematuria may be the only sign of that disease. This baby continuously grew worse under ordinary methods of treatment and improved only when orange juice and other treatment directed to the possible existence of scurvy were given. In another case hematuria occurred with distinct evidences of scurvy. Thinking that it might be of interest in this connection Dr. Griffiths had had the records examined of the last 100 infants and children admitted to the Children's Hospital, with a view of determining the frequency of renal or vesical trouble in these cases, and had found that there were 16 cases in which nephritis was found to be present and 3 instances of cystitis.

As an instance of the readiness with which nephritis is overlooked, he referred to one case in which the child had been sent in with the diagnosis of gastritis. The urine contained large numbers of casts and considerable albumin, and the symptoms improved as the urinary signs grew better. In this case it was quite evident that the disease was purely an acute nephritis.

Dr. Griffith also referred to a case of pneumonia in which there were signs of nephritis, the urinary signs of the last-

mentioned disappearing with those of the former; it was evident therefore that the nephritis was a result of the pneumonic intoxication. Another similar case was referred to, and still another, in which the nephritis did not entirely disappear while the patient was under observation. A fourth case, of croupous pneumonia apparently about to convalesce, died with the evidences of severe nephritis. The 100 cases included 34 of croupous pneumonia; and of these 34, 5 showed nephritis—a pretty large percentage.

As to the symptomatology of nephritis in early life, the fact cannot be too strongly impressed that there are, as a rule, no definite symptoms. There is often fretfulness with some fever; or, if fever has been present before, an increase in its intensity. These are often the only symptomatic evidences of the disorder of the kidneys. It is important to remember that even babies, but particularly older children, may show a decided change in disposition as an evidence of the renal disease. Dr. Griffith mentioned a case in a girl of about 10 years, in which the only abnormality noticed for some time was a very decided change in disposition, with marked irritability. An examination of the eyes revealed some suspicious appearances; the urine was then tested and the presence of nephritis discovered. It is very important not to neglect these changes of temper in children. They may of course mean many things; but they usually indicate some abnormality, and one of the things that should be thought of under the circumstances is nephritis.

As to the method of collecting the urine, Dr. Griffith has found it almost impossible to use any one procedure with satisfaction. He had had difficulty in securing a rubber catheter small enough, but had obtained some of prepared silk. These could be used with entire satisfaction in infant girls; in infant boys, however, he had found it often very difficult to employ the instrument. In these therefore he generally collected the urine by adjusting a wide-mouthed bottle over the penis and attaching it by straps around the waist. This was satisfactory except when the infant was restless; but even in this case, a careful watching for the time when urine was passed would be generally successful. The plan has been proposed of allowing the infant to lie almost completely undressed on a rubber sheet and draining the urine from this into some vessel. Dr. Griffith did not consider this advisable on account of the necessary exposure to the child.

Dr. J. D. Milton Miller said that he had especially noted that Dr. Morse's paper concerned children below two years of age, and that the latter had said that he had examined the urine in every case that had been admitted to his service during the last two years. Dr. Miller had wondered whether the urine had been collected by catheterization. He had always felt reluctant to use that method because of a fear of producing cystitis, for it had always seemed to him that the danger of causing bladder disturbance was a very decided one. He wished to ask Dr. Morse whether he had ever met with this complication of catheterization. Dr. Miller had not seen it personally, but had had little experience. He referred, however, to the case of an infant girl in which he had carried out catheterization at least a dozen times without any signs of cystitis developing. He had been unsuccessful in infant boys.

Dr. Miller then referred to a case of iliocolitis in an infant of 15 months, which was an example of the readiness with which nephritis, particularly when it is a complication of some other marked disease, may be overlooked. The child had exhibited no definite signs of nephritis, but a routine examination of the urine had shown the presence of albumin and casts. He also referred to the probable frequency of an influenzal nephritis in infants. As a complication of influenza, nephritis is known to be comparatively common in older patients; and he believed that more frequent urinary examinations would make it evident that it is not uncommon in infants.

Dr. Riesman said that several years ago, when he was doing the pathological work at the University Hospital, he had met with several cases of hemorrhagic infiltration of the kidneys in the new-born, which, in one or two instances, was associated with hemorrhage into the suprarenal glandss. No satisfactory cause for the lesions could be determined.

Dr. Riesman also mentioned the case of an infant in which there was frequent micturition with a very large quantity of urine which contained no sugar and showed no other abnormalities except a very low specific gravity. He had been in doubt as to the actual nature of the case, but was inclined to consider it diabetes insipidus, although the child was thriving.

Dr. McKee said that the edema which occurs in gastro-intestinal disturbances and in some other conditions when

nephritis is absent might, he thought, be understood through a study of the action of lymphagogues. It had been well determined that those lymphagogues which increase the solid contents of the lymph cause damage to the vessel-walls. The latter are also damaged by the poisoning which occurs in nephritis and many other toxemias, and Dr. McKee thought it probable that the edema seen in the absence of nephritis is due to injuries to the vessel-walls produced by an intoxication.

He had observed nephritis in the pneumonias of infancy, and mentioned a case which he had recently had under observation. In this there had been catarrhal pneumonia following whooping cough, and when seen, a consolidation of the right apex. The case was at first thought to be tuberculosis, and when some albumin and a great deal of pus were found in the urine it was suspected that there was tuberculosis of the kidney. Both the renal and the pulmonary conditions entirely cleared up, however, and it became fairly evident that this was a case of nephritis complicating unresolved pneumonia.

In confirmation of Dr. Riesman's observations, the speaker also mentioned the case of an infant that had passed large quantities of urine of low specific gravity. This case he had been able to follow for nearly ten years. The urine had exhibited the same characteristics throughout this time and the child had had nocturnal enuresis.

As to the occurrence of nephritis in influenza, this same child had developed that complication. This case was an excellent example of the truth of what Dr. Griffith had said regarding the obscurity of the signs in such cases. The child had had continuous fever and prostration, and seemed to be passing into the course of typhoid fever. Examination of the urine, however, showed on the third day evidences of decided nephritis.

Dr. Rosenthal said that he had frequently made use of antitoxin and had made it a regular custom after giving injections of antitoxin, and particularly after intubation or tracheotomy, to examine the urine. He had fonnd albumin present with great frequency. When much albumin is present in cases in which intubation is necessary he had found that the child almost always dies. The cases mentioned were, of course, almost always instances of actual diphtheria, and albuminuria would naturally be expected to be present in many instances.

It seemed probable to him that the antitoxin had had little influence in the production of the albuminuria.

Dr. Graham said that he believed that he, as well as most other practitioners, had been rather lax in the examination of the urine of infants, but that he had for a considerable time past insisted upon the examination of the urine of every child with any infectious disease. This had often lead to the discovery of nephritis when it could not otherwise have been suspected. He had been very much interested in the prognosis of these cases and had followed a large number of them for a long period. He had found that, as formerly stated, and as particularly insisted upon by Holt, they usually run a favorable course and commonly get entirely well.

He referred to a case which he had seen only a few hours previously and which was a good illustration of the development of uremia in infants. The child had been attacked with measles two days previously, and in the stage of active eruption, it had suddenly gone into a convulsion. After this it had been fairly clear mentally, so far as could be told, for a short time following which it had had another convulsion. Since that time (about noon) two more convulsions had occurred. Directly after the onset of the convulsions Dr. Graham had had the urine examined and a good deal of albumin and many casts had been found. Such cases are sufficient evidence of the truth of Dr. Morse's statement, that one is remiss unless he makes a systematic examination of the urine in infants just as he would in older persons.

Dr. Edsall asked whether Dr. Morse had any special apparatus to recommend for the collection of urine, particularly for the accurate collection of the 24 hours' urine. In attempting to carry out some investigations of metabolism in infants he had been forced to the conclusion that the only apparatus available that can be depended upon to collect the total quantity of urine necessitate so much restraint of the child and keep it in such an abnormal position that the results of investigation must be extremely unsatisfactory.

As to the question of the origin of the albuminuria of the new-born he was strongly inclined to believe that it is largely due to uric acid. This acid has been robbed of most of its supposed powers of producing disease by recent investigations;

but the His school have shown definitely that it will cause local necroses when in an extremely concentrated form, and, on the contrary, the Ebstein school have failed to show that the deposits of uric acid in the new-born are secondary to alterations in the epithelium propuced by some other cause; therefore the uric acid deposits are probably primary and very likely produce at least a considerable amount of the irritation themselves.

Dr. Edsall also asked Dr. Morse whether he had had any personal experience with what Pal, in especial, describes as congenital or inherited chronic interstitial nephritis. From the latter's description one would think that the condition is not very uncommon; but Dr. Edsall had been unable to discover any cases that seemed to belong to this class.

Dr. Morse, in reply, said that he had no especial apparatus to recommend for the collection of urine. At the Infants' Hospital he was accustomed to use for male babies the Walker-Gordon nursing bottle tied around the waist with tape; for the girls he used an apparatus of somewhat basin-like form, made of an oakum ring covered loosely with dental rubber. This was placed inside the diaper, and had proved very satisfactory. He had never made any attempts to collect the total 24 hours' urine. From what he had seen of the descriptions of the methods, however, he thought that it was extremely difficult and unsatisfactory.

In reply to Dr. Miller's question, he stated that it had not been found necessary to use a catheter in any of the cases seen in the hospital wards, but he had often used one in out-patient work, and had found no trouble in using it and had seen no bad results from its use. The question of the danger of causing cystitis always comes up in the discussion of the subject of renal disorder in infancy. He thought that an examination of the printed discussions concerning this point would show that the men who have had experience always state that they have seen no bad results, while those who fear that cystitis may be caused are always those that have not used the method. Personally Dr. Morse had never seen any evidences of cystitis following the use of the catheter in infants, and he thought that cystitis could be avoided with proper care. On the contrary, he had in a number of instances discovered the presence of cystitis through the use of the catheter, when it had not

been suspected that this disease was present. In these cases the use of the instrument, through establishing the diagnosis, had led to the cure of cystitis.

As to Dr. Rosenthal's statements concerning antitoxin, he said that in the Infant's Hospital in Boston it is the regular custom to give 300 units of antitoxin to every infant immediately after its admission and to repeat this every three weeks. The reason for this is, of course, the frequent occurrence of outbreaks of diphtheria when such precautions are not taken. These outbreaks are almost always due to some cause of nasal diphtheria, so slight as to be overlooked. In spite of this use of antitoxin albuminuria is not at all common, and this indicates pretty strongly that antitoxin does not frequently produce albuminuria.

As to the statements of Pal and other authors who describe a congenital tendency to nephritis—particularly to interstitial nephritis, Dr. Morse considered that the reports of these authors are such as to indicate that a tendency of this kind does exist. Personally he had never seen cases in which he thought the condition could be considered an inherited nephritis or in which there seemed to be an inherited tendency to nephritis.

Epistaxis in the Newly-Born.

D'Astros (*Archives de Medicine des Enfants*, April, 1902), in a review of this subject, concludes that this symptom always depends upon infection. Hereditary syphilis, either with or without local nasal lesion, is the most frequent cause. In some cases a septic infection underlies the condition. Not infrequently we have the association of syphilis and sepsis. When in the newly-born epistaxis appears to be idiopathic, careful examination for signs of latent syphilis should be made. The amount of hemorrhage is rarely large, still more rarely dangerous. Its gravity comes from its underlying cause, toward which the therapy should be directed.

NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Stated Meeting, April 10, 1901.

ROWLAND G. FREEMAN, M.D., Chairman.

Sarcoma of the Lung.—Dr. LOUIS FISCHER reported a case of this kind occuring in a child, and presented a microscopical specimen from the tumor. He said that the tumor occupied the site normally occupied by the heart, and that the chief clinical features had been rapid, irregular and sighing respiration, a temperature of a little over 100° F., constant and severe dyspnea, more or less cyanosis, pallor of the mucous membranes and rapid emaciation. There was also a lateral curvature of the spine, from left to right, in the dorsal region. Dr. Carl Beck had examined the child with the X-rays, but owing to the great restlessness of the little patient had been unable to give much information concerning the nature of the new growth. An exploratory operation was done, but the child succumbed a few hours afterward. The specimen from the tumor was examined by Dr. F. S. Mandlebaum, who reported it to be a spindle-cell sarcoma. Such growths in the lungs are very rare in children.

Vaccination Packet.—Dr. B. VAN D. HEDGES, of Plainfield, N.J., presented a vaccination packet which he had designed to facilitate the performance of aseptic vaccination by the general practitioner. The packet contains one bottle of liquid soap, one bottle of alcohol, some Bernay's compressed sponges, sterilized needles and gauze vaccination shields. The latter were made up of three or four layers of sterile gauze bound together at the end with strips of Z O plaster. Dr. Hedges said that most of the vaccination shields in the market were objectionable because of the lateral constriction which they make, but this was obviated in his shield.

Dr. J. H. HUDDLESTON saw no objection to the shield; he suggested that a sterile slip for rubbing in the liquid vaccine be included in the outfit.

Dr. R. G. Freeeman remarked that the sterile needle seemed to him more suitable because of the ease with which it could be made sterile.

Dr. Floyd M. Crandall said that such a gauze shield could not be applied immediately to the vaccination, and that valuable time would be lost waiting for the vaccination to dry. To avoid this he made use of a large corn-plaster, which the patient was instructed to remove in three days.

Dr. C. F. Collins said that he used a shield made up of two pads of sterile gauze, each about ½ inch thick. The lower one has a hole cut in the center so as to raise the upper gauze pad above the level of the vaccination.

Dr. W. S. Stokes said that he applied a small piece of rubber tissue immediately after doing a vaccination, and as the chances of infection were slight after the vaccination had "taken," he then made use of a simple gauze dressing.

Dr. F. A. Kinch, of Westfield, N.J., said that as an immediate and temporary dressing he made use of discs of cardboard, from which a segment is cut. These, when moistened, can be readily folded so as to form a miniature tent over the vaccination.

The Progressive Principle in Infant Feeding.—Dr. H. L. Coit, of Newark, N.J., read a paper with this title. He said that although the principle of modifying cow's milk for infant feeding had been known for many years it lacked sufficient simplicity to allow of its ready adaptability to the needs of general practice. Many general practitioners still insisted upon carrying in their pockets some old-time formula, and if all children could not be made to fit this formula, the various proprietary infant foods were then successively tried. One difficulty in the modification of milk was the variability of the milk itself. Again, it was the opinion of many good observers, that milk that had been subjected to the violent agitation produced by the centrifugal cream separator was not as well fitted for infant feeding as milk in which the natural fineness of the emulsion had not been destroyed in this way. In considering the progressive principle in infant feeding it should be remem-

bered that the great majority of cases coming to the physician for advice were not well but sick infants, and that every baby was a law unto itself as regards its food. Every feeding case should be seen at least once a month, and it should be a cardinal principle to begin with very low percentages and gradually feel one's way to stronger mixtures. Not infrequently infants would be found on a diet that was intended for an infant of four months. The changes in the percentages in premature infants must be very small and made with the greatest caution. In progressive infant feeding two points should be given special prominence, viz., (1) the present capacity of the infant and (2) the normal capacity of a healthy infant that has obtained the maximum growth, The physician would often be aided by writing out for himself a series of formulæ indicating the progression to be made in the individual case. He was accustomed to make use of a superfatted gravity cream of uniform strength.

The following case, which would illustrate the method of progressive feeding, was an illustration of fat starvation from skim milk. The child was three months old and weighed 10 pounds. The interval of feeding was two and a half to three hours; the number of feedings seven or eight; the amount 3½ to 4½ ounces. The initial formula was fat 2.5, sugar 5, proteids 0.9; the maximum formula, fat 3.5, lactose 6, proteids 1.1. The case was advanced one step in a series at intervals of seven days. Thus:

	Initial Formula.		Maximum Formula.	
Decimal cream,	8¼ oz.	9 oz.	9½ oz.	10 oz.
Decimal sugar solution,	13⅓ oz.	14¼ oz.	16½ oz.	18 oz.
Plain boiled water,	11½ oz.	9½ oz.	7 oz.	5 oz.

The Feeding of Children During the Second Year.—Dr. T. S. Southworth read this paper. He said that the real change from breast to other food nowadays often occurred considerably before the end of the first year. If it could be avoided weaning should not be attempted during the summer and if the need for such change arose from the failing quantity of breast milk, the infant could often be carried over the hot weather by supplementing the breast feeding by the use of the bottle. The first addition to the food should be a gruel made

from oatmeal, barley or wheat. If diarrhea, eczema or intestinal indigestion were present oatmeal was undesirable, but ordinarily it was to be preferred. It was most important that whatever cereal was selected should be very thoroughly cooked, strained and salted, and should be served with sugar and milk or cream. Cow's milk should be the basis of the child's food during the second year, and the bottle should be continued because in this way the child would take more milk than from a cup. Many people seemed to think that the ordinary size of nursing bottle should be used; yet it was possible to find in the market nursing bottles holding 12 ounces, and these should be used during the second year. Dr. Southworth outlined the following general plan of feeding as appropriate to children of this age: 7.30 a.m., breakfast, including a bottle of milk; 11 a.m., bottle of milk with a crust of stale bread or a piece of zwieback; 2 p.m., dinner, with less milk as other food is increased; 6 p.m., supper, including a bottle of milk; 10 p.m., a bottle of milk. About the middle of the second year the bottle should be replaced by the cup except at the ten o'clock feeding at night. Soft boiled eggs might be allowed every second day for breakfast, and the diet should be varied by mixing bread crumbs with egg, or with milk, or by giving crackers, broths and meat juices. Orange juice, if carefully freed from the pulp, and two or three prunes, freed from the skin, were useful additious to the diet. A mealy potato, baked, should be the first vegetable. Stewed celery and tender boiled onions might be given towards the end of the second year. Beef juice, expressed from lightly cooked steak, Dr. Southworth considered very useful, even before the end of the first year, particularly in anemic babies. From 1 to 3 ounces should be given daily, but in children of nervous, rheumatic or gouty parents, beef juice and broths must be used with caution. Towards the middle of the second year the fine white meat of poultry and scraped steak or mutton chop may be given. These young children should not be allowed to come to the family table, for the longer they could be kept from desserts, and sweets generally, the better. It was necessary to specifically warn the ignorant against giving their children tea, coffee and beer.

Dr. Leroy M. Yale opened the discussion. He said that he was glad that both authors had recognized the fact that

there is no average baby, and that the individual infant must be studied in the matter of feeding. It was just as necessary to regulate the diet in the second as in the first year, though carelessness in this regard was not so apt to be immediately visited with such dire results as in the case of children under twelve months. Special attention should be given to such inherited tendencies as gout. Much that Dr. Southworth had put in the dietary of the second year he would prefer to postpone until after the age of twenty-one months. Up to eighteen months very few children do well on undiluted or unmodified cow's milk. The advice given regarding the use of fruits seemed to him judicious. He was timid about giving children potato during the second year. Beef juice was of value rather as a sauce than a food, because ounce for ounce it does not have a proteid value equal to that of full milk. It was, however, useful as a stimulant and appetizer.

Dr. L. E. Holt approved of the principle of progressive infant feeding, and suggested that the following method, which he employs, might be found simpler than the one outlined by Dr. Coit: Take 20 ounces as the total quantity of food to be prepared, and starting with milk sugar 1 ounce, lime water 1 ounce, and water enough to make this total quantity, he successively adds, as the case seems to warrant it, 2, 3, 4, 5 and 6 ounces of 10 per cent. milk. This gives the following series of percentages: fat 1, sugar 5.5, proteids 0.33; fat 1.5, sugar 5.5., proteids 0.5; fat 2, sugar 6, proteids 0.6; fat 2.5, sugar, 6, proteids 0.8; fat 3, sugar 6, proteids 1.

Much trouble was experienced from bad habits in feeding. It was a common complaint that a child refuses cereals and vegetables and only takes meat, but in such cases it was usually only necessary to serve the meal in courses, keeping to the last the meat, and explaining to the child that it cannot have the meat unless it takes a fair share of the other articles of food. He was opposed to the practice of allowing the child to continue to use the bottle throughout the second year, for this usually resulted in the child insisting on keeping the bottle until the age of three or four years, and refusing to take milk except in the bottle. He did not approve of giving green vegetables or potato before the age of twenty-one months. It was amusing to note the comments made by English and German physicians on the diet of babies going from this country

to Europe. The English physicians were astonished at the quantity of what they called indigestible cream allowed, while the German physicians protested against giving so much beef juice.

A very common mistake in feeding was to give the cereals insufficiently cooked. Many of the popular cereals were said to need only a few minutes' cooking, but he was accustomed to order even these cooked for four or five times as long as stated in the directions found on the packages. This prolonged cooking often necessitated the preparation of the cereal over night in order that it might be ready for breakfast.

Dr. Floyd M. Crandall said that he was not in the habit of making any very great difference in the dietary of the fourteenth or fifteenth month from that of the latter part of the first year. Milk should always be the basis of the diet of the second year, but one should not neglect to add fruit, such as orange juice and baked apple. For constipated babies it was a good plan to give prunes that had been boiled with a few senna leaves.

Dr. C. G. Kerley was in favor of giving babies full milk when one year old. He was not very fond of giving beef juice steadily to children because of its tendency to excite a mucous diarrhea. Sometimes beef juice was used as a substitute for milk in cases of summer diarrhea, but this was a great mistake and in more than one instance of this kind he had succeeded in checking the diarrhea by withholding the beef juice. He thought that children, as a rule, do better if the meal at 10 p.m. is stopped after the age of fifteen months.

Dr. H. D. Chapin spoke of the home modification of milk by using the top milk found already separated naturally in the milk bottles. Such cream was better for the child than cream obtained by the use of the centrifuge, as the mechanical agitation of the latter broke up the fine emulsion found in milk in the natural state. Given good bottled milk and an easy means of removing the top milk, all that was necessary to remember in connection with home modification was that in the first 9 ounces of top milk the fats and proteids bear the ratio of 3 to 1 and in the first 15 ounces of top milk the ratio is 2 to 1.

Dr. Coit commended highly the very simple method of progressive infant feeding described by Holt. He said that he favored eliminating milk sugar from the milk after the age of ten months and substituting therefor a cereal that been boiled in an open vessel for three hours. He specified an open vessel because in the double boiler the temperature is below the boiling point. It was well, he thought, to early accustom the child to drink milk from a cup. A child of eleven months should be eating bread and butter and cereal with milk. He did not like to give potato before the end of the second year for the reason that most potatoes found in market are dug up before fully ripe, and hence the contained starch was indigestible.

Dietetic Aphorisms for Infant Life.

The following are the aphorisms which are offered:

1. Nature's way and Nature's food are the best. The possibility of the improvement of the quality or quantity of the mother's milk should always be considered before putting the child on artificial feeding.

2. We should do the best we can with what we have. Here Griffith protests against the adoption of any one fixed formula for infant feeding. The mixture must be made to meet the special requirements of the child.

3. Keep up with the times. What is unscientific will not pass muster. He gives formulas and equations of infant food, giving the most recent and from experience the most suitable.

4. Know what you want. We should know why we give this or that mixture to certain children and should not be lazy or too adherent to old ways.

6. Go slow and do not increase the strength of the milk too rapidly or introduce too much starchy food. The age of the child should not be the guide, but its general condition, especially its weight, should be.

7. Lastly, he mentions the starvation treatment, meaning by this the judicious temporary reduction in the amount and strength of the food given, to meet the necessities of the case.—*Jour. A. M. A.*

ABSTRACTS

ELBOW FRACTURES IN CHILDREN.

F. J. Cotton (*Ann. of Surg.*, January, 1902). At birth, one epiphysis without any points of ossification forms the whole lower end of the humerus, including the epitrochlea (or internal condyle) on the inner side, the external condyle and epicondyle on the outer side, and, according to Krause, about one-quarter of the coronoid and olecranon fossæ. The epiphysis is but slightly hollowed out to fit the end of tne diaphysis, and the epiphyseal line is almost exactly transverse.

At the age of one and a half or two years a center of ossification appears about the center of the external portion of the cartilaginous epiphysis,—the epiphysis of the capitellum or external condyle. There is as yet no point of ossification corresponding to this on the inner side, but the diaphysis early begins to grow downward on the inner side at the expense of the epiphysis, and it results from this that the epiphyseal line becomes increasingly oblique downward and inward, while the cartilage of the trochlear surface becomes thinner and thinner till it is eventually little more than a convex shell capping this portion of the diaphysis. The capitellar epiphysis meanwhile maintains its depth, and ossification proceeds in it from the center outward in all directions.

Meanwhile at about five years of age the center of ossification for the epitrochlear epiphysis makes its appearance; occasionally this is not obvious (according to Hutchinson) till ten years or later.

The small, thin ossification center of the trochlear portion does not appear until the eleventh or twelfth year; at this time the trochlear surface has become little more than a shell, and the ossification at this point never reaches any considerable proportions. According to Faraboeuf this epiphysis unites with the diaphysis direct, but the usual account is that it first fuses with the capitellar epiphysis at about the fifteenth year.

The ossification center for the external epicondyle appears between twelve and fourteen, is never much more than a small scale, and by the sixteenth year has become merged into the capitellar epiphysis to the shaft leaves only the epitrochlea as a separate epiphysis. This seems usually to join the diaphysis between the sixteenth and eighteenth year, but may in rare instances, according to Rambaud and Renault, remains an epiphysis throughoutl ife.

At the age when lesions are most frequent, from three to twelve years, the end of the diaphysis presents a considerable slope down and inward, and is capped with a thick capitellar epiphysis and a very much thinner trochlear epiphysis; between these two runs a line of demarcation, the capitellar epiphysis including the outer edge of the groove in which the ulna lies as well as the surface for the radial head.

The internal epicondyle has a separate point of ossification; by twelve

years of age it has ceased to be a part of the general epiphyseal cap of the bone; previous to this it is still connected to the trochlea by cartilage, and a fracture of it is much more likely to open the elbow-joint.

As to the appearance of the epiphyses in the skiagraph, the accompanying figures (1 and 2) give an adequate idea.

These are arranged in this way. Fracture or epiphyseal separation of the external condyle (Fig. 3, 2). Separation of the whole epiphysis (Fig. 3, 5); *a*, pure; *b*, involving part of diaphysis at one side. Supracondylar fractures. (Fig. 3, 1.) T or Y fractures. (Fig. 3, 6.) Epiphyseal separation of the epitrochlea. (Fig. 3, 3.) Fracture of the internal con-

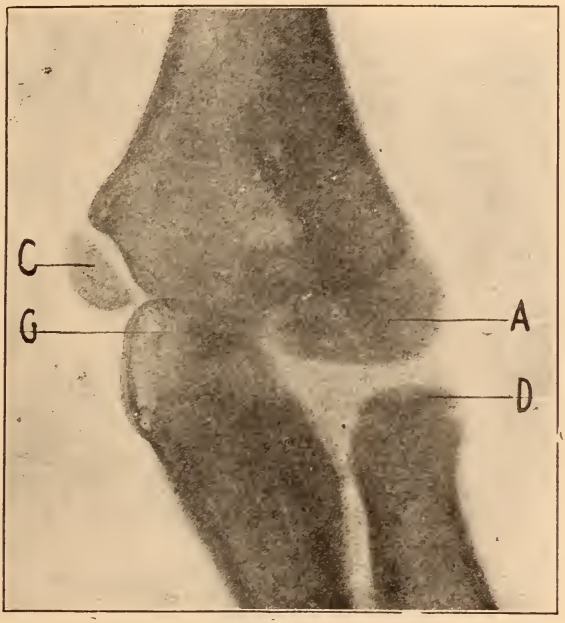


FIG. 1.—Anteroposterior view. Epiphysis at about thirteen years. A, Capitellar epiphysis; D, Trochlear epiphysis; C, Epitrochlear epiphysis; G, Radial epiphysis.

dyle. (Fig. 3, 4.) Partial fracture of the capitellum. (Fig. 3, 7.) Fracture of the external epicondyle.

The last three of these are so rare, at least in children, that they may be practically disregarded; the same is apparently true of T and Y fractures in children. The classification practically possible when a case is examined, the classification of importance in course and treatment, resolves itself into (*a*) fractures of the external condyle; (*b*) supracondylar and condylar fractures, including separation of the epiphysis as a whole; (*c*) fractures of the internal epicondyle.

Fractures of the external condyle.—These as here classified represent a class of substantially epiphyseal lesions, a separation of the capitellar epiphysis (usually with its trochlear prolongation), and in the great majority of cases including a sliver of diaphysis.

The writer's series shows 16 of this class of cases.

In this series there are no proved cases of strictly pure epiphyseal separation, though in several of the cases the portion of diaphysis detached with the capitellum can hardly have been more than a scrap of periosteum. From the data of this series, it is not possible to say how constantly the outer edge of the trochlea separates with the capitellum, to which it belongs developmentally; from the lateral mobility found in some of the cases, however, from the frequent slight displacement of the ulna inward and from data of other observers, it seems probable that the epiphyseal line is usually adhered to and that the outer trochlear ridge accompanies the capitellum.

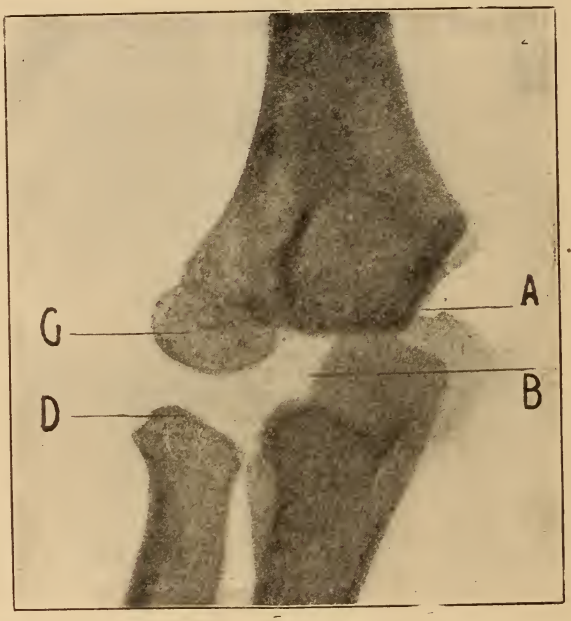


FIG. 2.—Anteroposterior view at ten and one-half years. A, Capitellar epiphysis; B, Space occupied by trochlear cartilage: C, Epitrochlear epiphysis; D, Epiphpsis of rodial head.

The most usual displacement of the condyle is outward.

Displacement up and out is obvious in the plates of Langhan's specimen, figured by Kocher, and in Poland's dissecting-room specimen, as in Sir Astley Cooper's specimen of non-union, and in the various operated cases of non-union.

Outward displacement, *in toto*, of the condyle alone is usually limited by the complete or nearly complete preservation of the ligamentous connections of radius and external condyle.

Inward displacement, as in a case of Stimson's and in the specimen figured by Bryant, must also necessarily be accomplished by a subluxation or luxation of the forearm. This displacement as a result of fracture of the external condyle is evidently rare. The *sub*luxation to a slight degree seems clinically to be not uncommon.

Backward displacement, except in case of luxatton, does occur (Mouchet did an excision where this was the condition), but is apparently usually slight and is likely to show rather rotation than total displacement of the fragment.

Forward displacement is usually slight.

Downward displacement is recorded in a case of Rieffel's.

Much more important than the usually slight displacement *in toto* is the rotation of the fragment. It is very common, is a cause of deformity as we shall see later, and probably in its severer grades is a cause of the occasional failure of union.

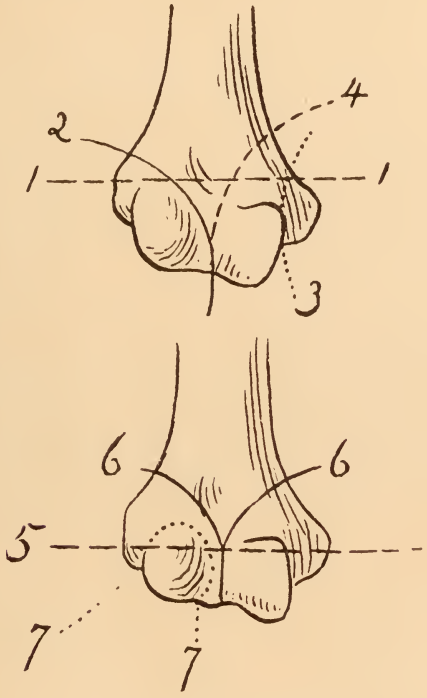


FIG. 3.—Fracture lines. (After Kocher).

This rotation seems more constant than would be expected without some special cause. Whether the rotation is caused by traction on the external lateral ligament at the time of the accident (a continuation of the upward force which produced the fracture rotating the fragment upward on the ligament as a fulcrum), or by subsequent manipulations, it would be hard to say. The first, however, seems to be the most plausible explanation.

Kocher (on the adult cadaver) produced the fracture experimentally (*a*) by an oblique blow directly on the flexed elbow; (*b*) by a blow on the hand with the elbow flexed, the force being transmitted through the radius to the capitellum. He thinks the accident occurs clinically from

falls on the flexed elbow with the arm abducted, the olecranon driving the external condyle before it.

Separation of the whole lower epiphysis.—This epiphysis, as has been pointed out, includes up to the age of 11 or 12 years the whole cartilaginous portion with both epicondyles. After this the internal epicondyle is no longer included. The pure epiphyseal separation is evidently rare at any age, though a good many fractures here classified as supracondylar undoubtedly pass along a portion of the epiphyseal line. No cases of the pure epiphyseal separation are included in the writer's series, nor has he seen any save one doubtful case in a boy eight or nine years, seen but once just after the accident, which was probably an incomplete epiphyseal separation.

Separation of the epiphysis with involvement of the diaphysis.—This is the commoner form of epiphyseal separation. In the writer's series there is no fresh case, but one healed case probably belongs here.

The typical displacement of the epiphyseal separations, pure or involving the diaphysis, seems to be a backward displacement of the epiphysis; if there is deviation to either side it seems more often to be outward. Poland figures one case with forward displacement.

In these, as in other epiphyseal separations, there is likely to be much stripping up of the periosteum.

A striking feature of the recorded cases of this lesion is the frequency of compound injury.

We know that the epiphyses of the lower end of the femur and that of the radius at the wrist are more likely to give way to extreme violence while the bone itself seems more usually to give way to less severe trauma. Evidently the same is true of the elbow epiphysis.

As to the mechanism of epiphyseal separation, the author's experiments on the new-born showed separation to be readily produced by hyperextension, by abduction or adduction, or by a forward thrust from behind.

(*To be continued*).

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ILLUSTRATIONS